European Civilization solved by ‘Habitat Segregation’
Why was Capitalism born in Europe?

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1. What is ‘Habitat Segregation’: the reason of the Holocaust

Habitat Segregation?

I borrow the term ‘Habitat Segregation’ (Sumiwake) from a Japanese biologist Imanishi. His Habitat Segregation theory means that species live in each adapted habitat with segregated spaces and times, for example, one fish species lives in the upper river, another fish species in the middle. This phenomenon comes from not Darwinian ‘natural selection’, but from an environment in which species adapt themselves.

I define ‘Habitat Segregation’ in two categories: Ecological Habitat Segregation and Active Habitat Segregation. Major Ecological Habitat Segregations are population, market, wealth and power as index; Active Habitat Segregations are represented by space and time. Ecological Habitat Segregation is a concept near Imanishi Theory. But Active Habitat Segregation is more severe. This is, so to say, to clear up, to arrange, to sort out or to classify. Let us think about your chest of drawers. You may keep sweaters in the most upper drawer, shirts in the second, socks in the lowest drawer etc. Your refrigerator would be the same. This is Active Habitat Segregation of space.

We can say also Active Habitat Segregation of time. You may work from Monday to Friday. Saturday and Sunday would be no work days. A working day is also classified: you should begin to work at 9 o’clock or? At what time does your lunch time begin and finish?

I am myself also sorted out. I must give students a lecture on European histories in the lecture room 1121 in the third period(12:50-14:20) every Tuesday. I am compelled to do a certain something in a certain place at a certain time on a certain day. Here I must talk about historical studies at least, and can’t about my divorce problem. If I drink whisky or, and simultaneously have sex in that lecture, this thing hits the headlines and I lose my job because drinking place and time, and the place of sexual intercourse are all ‘segregated’.

You would say that this is of course, but situations were not always so a long time ago. In ancient Greece philosophers discussed with drinking wine, hearing performance of musicians, sometimes with sexual intercourse. The word ‘symposium’ (symposion) meant a banquet originally. Even in the 19th century French craftsmen and laborers drank wine in their working time.
Attali\(^{2}\) says that there was no concept of a week in the European medieval rural regions. People didn’t know names of days except Sunday when they had to go to church. People had to also go to church on festivals such as Christmas, Easter, Corpus Christi etc., and didn’t need to work. So people knew only two kinds of days that were festivals inclusive Sunday and other days. Festivals were days of land taxes payments and finish days of apprentices. People worked from sunrise to sunset in workdays. In the summer they stopped their works earlier because the sunset is later. They worked, rested, ate, drank freely with no attention to time because they had no clocks and watches. Corbin\(^{3}\) says that time and times of meals were various and different by region, profession, season, social status even into the 19\(^{th}\) century.

You may say, ‘So Active Habitat Segregation is good’. But Active Habitat Segregation has dangerous aspects. It involves ‘exclusion’ or ‘elimination’. From the process of Habitat Segregation ‘impurities’ or ‘trash’ may come. We can get rid of trashes easily. But what occurs, if a human being is the object? We have experienced the Holocaust by Nazism as an extreme example. Nazism classified a human being by ‘race’, ‘ability’, ‘thought’, ‘health’ etc. There were here ‘impurities’ and ‘trash’ which they could keep in no drawer of ‘their chest’: ‘mental-, physical disabled persons’, ‘gypsy’, homosexuals, especially Jewish people.

Active Habitat Segregation of time

Let’s begin by thinking about ‘time’. Zerubavel\(^{4}\) defines a bound environment by time as environment of clockwork. I call this Active Habitat Segregation of time. An invention of mechanical clocks was very important for that. A first mechanical clock was made by a smith about 1300. In ca.1500 a spring invented and in 1657 C. Huygens (1629-1695) made a pendulum clock.

Mechanical clocks were used in a monasteries for the first time because monks pray at a certain time and a mechanical clock was convenient. In time a public mechanical clock began to be set on a city hall or a church. A public mechanical clock appeared first in Padua about the middle of 14\(^{th}\) century, and in 16\(^{th}\) century a public mechanical clock was a necessity in every city of Europe.

Formerly people divided day into 12 times, night also into 12 times, therefore one hour differed from seasons or latitude. A public mechanical clock could inform people of an almost uniform hour and automatically. Merchants and craftsmen came to act along with ‘time-schedule’. Time-schedule would exist earlier, but a bell of a city didn’t sound by hour. Of course the appearance of public mechanical clocks didn’t soon steer people to life with a clock. From the invention of a mechanical clock to the setting of a public mechanical clock in Padua, a half century went by and public mechanical clocks spread in every city of Europe gradually in the 15\(^{th}\) and 16\(^{th}\) century.

To tell you the truth, a mechanical clock was invented in China in the 8\(^{th}\) century. It worked by a waterwheel. In 1090 a big mechanical clock for astronomy was built in a capital: Kaifeng. Therefore I think that a beginning of Habitat Segregation of time existed at least in a capital of China. However from the 12\(^{th}\) century it didn’t develop and spread and in 14\(^{th}\) century the Emperor of China destroyed the big mechanical clock. This technology of China was introduced via Islamic world into Europe. Also in Islamic world a mechanical clock was used only for an astronomical interest of Emperors or scholars. Development of mechanical clocks occurred only in Europe (and Tokugawa Japan). Why?

From the later 17\(^{th}\) century to the first half 19\(^{th}\) century European mechanical clocks and watches have
developed more than ever. A minute and a second hand contributed to Active Habitat Segregation of time more and more. However there was local times and no ‘standard time’. In 1880 England determined ‘Greenwich Mean Time’ (Universal Time Coordinated). Every states followed this ‘Greenwich Mean Time’. In parallel with this universal time, an hourly wage spread in the end of the 19th century. An hourly wage system brought about a strict segregation of work and no work hours. People could no more go to an alehouse in working hours or drink wine in workshops.

Why did only Europe do Habitat Segregation of time?

I had to say first. I define ‘Europe’ or ‘European civilization’ as ages since ca. the 12th century. I exclude Greco-Roman and Byzantine civilizations from Europe. Calendars were made in every civilization, and also clocks: water-clock, fire-clock, sand-clock etc. But mechanical clocks developed only in Europe and only Europe did Habitat Segregation of time. Why? In other words, why didn’t mechanical clocks develop and Habitat Segregation of time progress in China or Islamic world? The Benedictine monastery regulated 7 times prayers along with labors, meals, readings and sleeping. But I think that Islam or Buddhist wanted to know ‘time of prayer’ precisely. In Japanese Buddhist temples ‘incense-clock’ (fire-clock) was used for that. Time-schedule of priests were the same more or less in every civilization. And I don’t think that a time-schedule of monastery came into the popular world.

Le Goff(5) says that ‘time of merchant’ emerged in the 12th/13th century and drove ‘time of church’ (time of prayer) away. Firstly merchants and craftsmen in cities worked along with ‘time of church’, which was gradually inconvenient for them because a watchman of a bell tower rang only at the time of church services, opening-shutting of city-gates etc. This was few and irregular. Therefore merchants and craftsmen wanted ‘time of merchant’, and came to the invention of a mechanical clock.

An explanation of Le Goff may be convincing. But ‘time of merchant’ must have been in every civilization. Why did only Europe develop mechanical clocks from ‘time of merchant’? In the 16th century a public mechanical clock spread in every city in all over Europe and wealthy citizens had clocks in their houses. In the beginning of the 17th century a public mechanical clocks was also set up at a church tower in every village. Why die not only merchants and craftsmen in cities, but also people in villages need a clock in Europe?

As mentioned later, Ecological Habitat Segregation of ‘wealth’ existed in European civilization. In Europe all people inclusive peasants had a chance to take a part of ‘wealth’. There was a market system that everybody could get wealth (money). There was a chance to wealth for all people. Therefore, to get a chance, people had to be informed of time. For example, if some man didn’t know time, a business negotiation might be gone. So that people need a clock. Time-schedule brought wealth. All people had ‘time of merchant’. Ecological Habitat Segregation of wealth brought about Active Habitat Segregation of time, and a mechanical clock developed and spread. In other civilizations, to the contrary, a market system didn’t exist in which all people had a chance to get a part of wealth. Ecological Habitat Segregation of wealth didn’t exist and a few people wanted to know time, so that a clock was needless for many people.

Active Habitat Segregation and Christianity

A long time ago the sacred- and the public world was mixed. In Europe a church was not only a service-prayer
place, but also a meeting-, market-, trial place, and people chatted, children played, craftsmen worked, performers performed, pseudo-beggars ‘worked’. A church was also a banquet place at festivals or baptism-, marriage-, and funeral ceremonies. In short, a church was a community center. Particularly in villages a church was an only large space. As monetary economy developed, a church lent money like a bank. A barber=surgeon also worked here.

The sacred- and the public world was mixed in every civilization: in Islamic world, India, China etc. Lane(6) mentioned about the beginning of the 19th century in Cairo so: in many mosques, particularly in the afternoon, many people strolled, chatted, ate, slept, sometimes spun thread or did easy handiwork. Here also community center! In mosques orders were informed. It was also a meeting-, trial-, educational-, and tax collection place.

In Europe, however, Active Habitat Segregation of the sacred/the public world was going gradually. Christianity played an important role for that. It was Christianity of the intellectuals. There were then two sorts of Christianity: doctrinal, ascetical, orderly, and pious Christianity of the intellectuals, and popular Christianity in which the sacred/the public world was mixed. The intellectuals’ Christianity regarded popular Christianity as ‘superstition’, ‘blaspheme’, ‘lazy’ or ‘immoral’ and tried to destroy it, particularly since the 16th century. The intellectuals’ Christianity tried to segregate the sacred from the public world. In the 12th century, popular Christian world was already criticized by the intellectuals, who grieved over churches which were debauchery places. Luther and Calvin tried to make a church, or space and time of the service, the pure sacred world, and also in the Council of Trent (1545-63) of Catholicism. But Active Habitat Segregation of the sacred/the public world was moving forward gradually. It is broader concept than the separation of religion and politics. The former brought about the latter.

By the way, where did the public world that was segregated from the sacred go? It went to a public house (alehouse or inn) in rural areas particularly. Public houses existed since the 13th /14th century but since the 16th century they increased particularly in villages. That was consequence of Habitat Segregation of the sacred/the public world. In cities banks emerged in Italy in the last half of the 13th century, but a public house in a village did this function until the beginning of the 19th century. Trials in cities were hold in a city hall or a courthouse in the 13th century. But trials in rural areas were hold in a public house until the breakdown of the feudalism, if a house of the lord was not used. Therefore a public house in rural areas became a community center instead of a church, or a public house and a church coexisted as two community centers of a village, and gradually the public world moved to a public house.

Active Habitat Segregation of space
I begin from two examples shortly. First: quarantine and public health. It comes from the concept of Active Habitat Segregation of space. Some scholars say that Pest in the 14th century caused both ideas. This is not right. Both ideas come from Habitat Segregation of space directly. Both quarantine and public health had almost never effect in the medieval- and early modern ages, but Active Habitat Segregation of ‘sanitary space’ and ‘unsanitary space’ is characteristic of European civilization.

Second: city planning. It was done certainly in every civilization, however in Europe it was thorough, let me say a typical example: garden city of E. Howard (1850-1928)(7). He planned parks, a city hall, museums etc. in the city center; houses, schools, churches in the middle belt; factories, warehouses, railways etc. in the next
outside; and farms in the most outside. It was a self supported city. A city must have 32,000 inhabitants. If a city has more population, another garden city must be built. Railways run between a city and other cities, between every garden city and the capital London. The idea that ‘comfortable’ and ‘sanitary’ housing-, working-, and leisure spaces were ‘segregated built’ in the suburbs of a capital spread in all over Europe.

As mentioned above, the intellectuals’ Christianity exists behind Active Habitat Segregation. Why Christianity? Why not Islamic or Buddhist religion? Answer is Christianity itself because it was quite ‘unfree’ and ‘intolerant’ religion. Christianity in Europe was Rome Catholicism at first, that didn’t tolerate not only other religions, but also other Christian confessions. Heresies was suppressed thoroughly: for example as Waldenses, Catharism etc. Jan Hus in Bohemia was burnt at the stake in 1415. As the result of Reformation, the wall of Catholicism was broken at last. Though Protestant denominations were formed since the 16th century, there was no freedom of faith by individual in 16th -18th century. Kings, princes or dukes determined a denomination (confession) in their territory. In a territory other denominations weren’t tolerated. In a certain territory only a certain confession was admitted. Habitat Segregation of denomination (confession)! Kings or princes purified their territories by a ‘uniform confession’. Not only Catholic Church, but also Protestant Churches were quiet intolerant. To speak generally the freedom of faith by individual was admitted as the result of the French Revolution. By the way Catholic Church proclaimed the freedom of the faith formally in the Second Vatican Council (1963-65).

However, in other civilizations the freedom of faith existed already, for example, in Islamic world Jewish, Christian and even polytheistic people were tolerated: in the Ottoman Empire (1299-1922) not only other religions, but also ‘sects’ as Shia or Druze coexisted; The Islamic Mughal Empire tolerated Hindu etc. In other civilizations, religions and denominations was mixed. Christianity, on the contrary, must uniform a certain space (and time). Only Christian world sent a large quantity of missionaries abroad. It tried to uniform the space ‘earth’ with Christianity.

1492 is a symbolic year for European civilization. Columbus reached ‘America’. Granada that was the last foothold of Islamic world in the Iberia, fell to Europe. In the same year, all Jewish people were exiled from Spain: 300,000 people. Spain purified a space ‘Spain’ by Christianity. Jewish and Islamic people were segregated as ‘impurities’. Before then there were many persecutions and exile of Jewish people in western Europe. Many Jewish people moved to eastern Europe. Nazism succeeded to this logic, and then many eastern Jewish people were sacrificed.

Why were Jewish people massacred?
National Socialists (NS) planned to exile all Jewish people from Germany abroad at first(9). As soon as the Second World War began, they began to build ghettos in occupied Poland, and then planned to exile Jewish people to USSR finally.

A first ghetto was built in Venice in 1516. Jewish people lived were already segregated in ghettos and Jewish districts, before NS built ghettos in the spring of 1940. Because the war against USSR became worse, NS had to move Jewish people to KZ (concentration camp) and murdered them. NS didn’t plan to massacre Jewish people from the first, but it is important that NS wanted to purify a space ‘Germany’ with ‘pure German’. This is the same logic of Spain of 1492. Finality of Habitat Segregation of space caused the Holocaust (ca. six millions).
Therefore it was not Nazism but European civilization that massacred Jewish people fundamentally. NS placed ‘Aryan’ on the top of a human being, and Jewish, ‘gypsy’, homosexuals etc. at the lowest position who could not be put in their chest. This is Active Habitat Segregation of human. Those who weren’t put in any drawer in their chest were ‘trash’. In the last half of the 18th century J. Blumenbach classified human in ‘Caucasus’, ‘Mongol’, ‘Ethiopia’, ‘America’, ‘Malay’(9). Another scholar asserted six classes. Three classes of G. Cuvier in 1817 became the most popular: ‘Caucasoid’, ‘Mongoloid’, ‘Negroid’, which corresponded to ‘white’, ‘Asian’ and ‘black’. However, these classifications have no scientific biologic reason. A human being is only one race: Homo sapiens. No ‘white’, no ‘black’ and no ‘Asian’ race exists.

Some examples of Active Habitat Segregation

First: nationalism. It was a product of the French Revolution. For the first time, ‘love to the nation’ was said. Nation was not only a state, but also ‘national people’. It was not a dynasty-state. Then a concept ‘nation state’ was born. French people became persons who speak French. People in a nation had to speak the same language. It is Habitat Segregation of space, human and language. The idea that the ‘same people’ must live and the same language be spoken in a certain space was formed. This space became a nation state. Movements of German and Italian nation building, of independences of Slav nations from the Ottoman Empire in the 19th/20th century and of Africa/Asia colonies from Europe in the last half of the 20th century etc. are all the same logic: nationalism. But in reality, it is impossible that the same people speak the same language in a certain space=state, for example, as German state (Reich) was built in 1871, many Pole existed in it; after independences of African nations, conflicts continue now because Europe determined borders in spite of the situations in Africa.

Second: difference between North- and South America. In USA and Canada Europeans didn’t mix themselves with natives and African slaves, and in the Middle- and South America, in contrast with North, many ‘half-blooded’ people live. Why? This is solved also by my Habitat Segregation theory. In North America, Active Habitat Segregation of human was done thoroughly. In Middle- and South America, it was not achieved because native civilizations (Maya and Inca) was strong. Generally people say that Europeans destroyed Maya and Inca, but I think that these native civilizations overwhelmed Europeans fundamentally. Therefore here new nations as Brazilian, Mexican, Peruvian etc. had to be ‘created’. In North there was no so strong civilization.

Third: classical music. There appeared no precise musical score except Europe. In the age of Pope Gregory I (ca. 540-604) there was no musical score, and people sang Gregorian chant only by memory. So it varied by region or person. About in the 11th century monks invented ‘neume’(10), an easy score by which people could see high and low of tone. Then seven scales in a score (five lines) was invented. I say Habitat Segregation of the high-low tones. Next Habitat Segregation of the long-short tones developed from the 15th to the 17th century gradually. Musical notes was developing. It relates to polyphony which is origin of classical music. Naturally music was monophony. Polyphony began to develop from 13th century. Performers would have played polyphony by memory at first, it became popular, but to sing some melodies simultaneously was difficult. As polyphony became more complex, people needed musical notes to harmonize many melodies. In this way a precise musical score was completed, which brought Bach, Mozart etc. Classical music is music that ‘segregated’ tones in the musical score.
2. Why did the French Revolution occur?

Why couldn’t a power be centralized in Europe?

Many powers in Europe existed and now exist in contrast with other civilizations that tended to concentrate in a strong power historically. Not few scholars saw a cause of European ‘superiority’ to other civilizations in division of power, for example, Wallerstein(11), who says that a strong power made Word-Empire politically in many civilizations in contrast with European civilization which led to never ‘Empire’. Europe was split politically and this caused economic competitions, then World-Economic-System.

I don’t always agree with Wallerstein’s theory, but political division of power was characteristic of Europe certainly. Frankish Empire split into three kingdoms soon: west-, east- and middle Frank. East-Frank that was German kingdom succeeded to Roman-Emperor in 962, but it led to ca. 300 independent powers by 15th /16th century. And the feudalism was very characteristic of Europe since the 12th century, in which not only kings, but also noblemen, clergymen and cities had their territories and collected taxies from their peasants. In the 12th century, for example, the king of France dominated only a relatively small territory around Paris. The position of the king existed only at the base of the feudalistic lord-vassal relations (inclusive under vassals). This situation was the same also in the age of ‘Absolutism’ when the king of France could dominate certainly all of France legally or collect a ‘national tax’, but territories of vassals weren’t confiscated. The king of France had never all of French territories.

To speak easily, on the contrary, in ancient civilizations, Islamic, Chinese, and Indian civilizations, the emperor possessed all territories of the empire in principle. Europe was different: division of power, that is Ecological Habitat Segregation of power.

Why did the Reformation make a success?

It began in 1517. Martin Luther attacked the Catholic Church, which then excommunicated him. In 1521 Charles V summoned Luther to the Estates (Reichstag) of Worms, and then Luther was pronounced exile from the Holy Roman Empire. It was Frederic the Duke Saxony that saved and harbored Luther in his castle Wartburg. Frederic was a vassal of Charles, but he opposed his lord none the less. The power of Charles was not so strong that he could not control his vassals. There was certainly the Emperor of ‘Holy Rome’, but in reality ca. 300 independent vassals dominated their territories in this Empire (German kingdom). If German area was unified politically, Luther’s Reformation would not have been achieved in Germany. And if Luther couldn’t have succeeded in Germany, other authorities existed in Europe. In reality Lutheranism spread in north Europe. Calvinism spread in Switzerland and France at first. As the power of French king was stronger in his own kingdom than German and Calvinism was persecuted in France, it went to Netherlands and Britain. If Europe itself was centralized as China, Reformation wouldn’t have been achieved when it was dangerous to the centralized power. The Reformation was a product of Ecological Habitat Segregation of power.

English and French political revolutions

English and French political revolutions influenced production of liberty, democracy, human rights and modern parliamentary system. The basis of these revolutions can be also explained by Habitat Segregation of power. Could you think about a seesaw at whose both sides two persons sit? Two persons are two powers: power of the
king on the one hand, power of the Estates (clergymen, nobility and bourgeoisie) in the other hand. European
dynasties stood on the balance of this two powers. If the power of the king came to be overweight and out of
balance, a vector back to the balance worked. So ‘Absolutism’ before Revolution!

In England the Magna Charta (1215) stated that the king could not collect a national tax without approving by
the Upper House. In the 14th century it needed also approval of the House of Commons. Also enactments of
laws needed both Houses. Politics in England balanced on this seesaw. Absolutism in England began, it is said,
from Henry VIII (1509-1547) who built the Anglican Church. In the government of Elizabeth I (1558-1603) the
Estates was held only four times. Then James I (1603-1625) exiled Puritan clergies from the Anglican Church
and conflicted with the Estates. At last Charles I (1625-1649) neglected the Petition of Right (1628) and didn’t
hold the Estates for 11 years. So the seesaw leaned to the side of the king heavily. And then the Civil War broke
out. As Charles was executed and came to the Commonwealth, the seesaw leaned to the other side, and so the
English Restoration (1660). But two next kings neglected the Estates and the seesaw leaned again, so the
Glorious (English) Revolution. The Estates issued the Bill of Right(1689) , restored the balance of the seesaw,
and followed a path to constitutional monarchy. Now there was no seesaw.

In France a seesaw leaned to the king’s side much more heavily. Only the weight of the Estates was
impossible to restore the balance of the seesaw. Therefore under classes and peasants had to sit on the seesaw.
The age of Louis XIV (1643-1715) flourished, and the next two kings conflicted with the Estates or parliaments
frequently. In 1787 Louis XVI (1774-1792) tried to collect a tax from the first- and the second estate who had
exempted until then. They refused this claim and demanded a meeting of the Estates General. This meeting was
held in 1789, in which the first- and the second estate conflicted with the third estate, who called then so-called
the National Assembly. The first and the second estates also joined in it. As Louis XVI tried to suppress it, the
masses was angry and rushed to the Bastille. The French Revolution broke out. Also in France Louis was
executed and republicanized. After that, Napoleon, Restoration, again revolutions etc. The French seesaw have
swung sometimes. Now no seesaw, no king, French Republic.

In this way European revolutions based on Ecological Habitat Segregation of power.

3. Why did Europeans aim for the ‘East’?

International trade before European civilization

Trade between Mesopotamian-, Egyptian- and Indus civilization existed by sea in the old days. China traded
with India also by sea at the latest in the 4th century BC. Curtin\(^{(12)}\) says that a trade-network was already formed
from the eastern Mediterranean Sea to China in the second century BC.: both by Indian Sea and by Silk Road.
Important trade goods were spices in southeast Asia and India, and silk and lacquer wares in China. To buy
them, Rome needed much gold or silver.

In from the 7th to the 10th century the Tang dynasty in the East, the Abbasids in the West flourished. Until ca.
1500 Islamic merchants were heroes in the Indian Sea Trade whose center was Baghdad till the middle of the
10th century. Baghdad had a million population. Many various goods from Africa to China were brought to
Baghdad. Islamic merchants went far to China. In Guangdong lived ca.12,000 Islamic merchants. From the
middle of the 10th century Cairo became the trade center. Islamic merchants got gold for the East-trade from a
western African kingdom Ghana where was a gold mine. Islamic merchants bought it with salt.
In China, an unprecedented economic growth continued in the age of the Song dynasty (960-1279). In addition to silk, lacquered wares, craftwork and tea, porcelain or ceramics became important exported goods, and spices and tropical goods were imported from southeast Asia and India. In the 11th century, an iron industry by cokes came out, in the 12th century an innovation of ship building: so called ‘junk’ with which a voyage of Zheng He was achieved 7 times (1405-1433). He went not only to southeast Asia and India, but also to the Persian Gulf, the Red Sea, at last to eastern African Malindi. The most biggest junk was 120 meter long and had 9 masts. Levathes\(^{(13)}\) says that Zheng He didn’t sail round the Cape of Good Hope and to Europe because only wool and wine of Europe weren’t interesting for Chinese. But I think that Chinese didn’t regard a land Europe as a civilization worth visiting. And Morris\(^{(14)}\) says that China could discovery America in the age of Zheng He. I think that China could do it much more earlier in the 12th century by junk. Why did China do it so? There was no need to do so. China could satisfy itself with trade of India and southeast Asia. Islamic world also could be satisfied with trade of Indian See.

European entry into the international trade network

Until ca. 11th/12th century, the international trade network reached from China to Byzantine Empire. Europe was outside this network. In the 11th century some north Italian cities began to join in a game, particularly Venice and Genoa. When Byzantine influence in the eastern Mediterranean Sea had declined because of Viking’s invasion and the Crusade, Italian trade with Islamic merchant became possible directly. Italian imported ‘treasures of the East’ from Islamic merchants. Spices were medicine for Europeans. Spices reached Italia and Europe from Indian western coast via the Red Sea, Cairo and Alexandria. Items that Europeans exported to Cairo were poor: woods, iron, copper and woolen textiles. Therefore Italian needed gold or silver to buy treasures of the East. Genoa began to get gold of Ghana through Islamic merchants of western Africa. It was barter with salt which Italian also had to buy from Islamic merchants. So it didn’t pay. They wanted to trade with kingdoms of western Africa directly. It was the starting post of the ‘Age of Discovery’ In 1453 the Ottoman Empire ‘eliminated’ Byzantine. Italian cities lost their way to the eastern Mediterranean Sea trade because the Ottoman Empire laid a high tax. Therefore Italian moved to the Iberia, where they established trading companies and began to try direct trade with African kingdoms without Islamic merchants. Behind Spanish and Portuguese expanding overseas, Italian interests existed\(^{(15)}\).

Why to the East persistently?

Europe was a ‘frustration civilization’. It had nothing, so had to go abroad. India, southeast Asia and China had ‘treasures’ in their civilization or in the neighborhood. Islamic civilization continued to rule the Indian Ocean trade and so could get all goods and products from Africa to China. These were ‘self-satisfy civilizations’.

First: there was not so much natural resources in Europe. There were copper, tin, iron to some extent. But gold and silver was few. Second: there was no product worth exportation like silk or ceramics in China. Third: there was no spices and few medical plant. Fourth: Europe was far from places of ‘treasures’, so could not get it easily. Therefore Europe had to struggle way to the East. This led to much success of Europe.

North Italian capital and navigation technology moved to the Iberia, where Arabian Islamic knowledge and technology had been accumulated, so Portugal and Spain could start first. In 1415 Portugal occupied Ceuta of
kingdom Morocco fortunately. By the death of Henrique (1394-1460) Portugal reached the Guinean Gulf. Now they could trade in gold without Islamic merchants. Portugal also bought slaves from African kingdoms and began sugar plantations in African islands. These actions was achieved without weapons, and friendly and equally. In 1490 the king of Portugal and the king of Congo exchanged letters, in which they swore brother-kings. Portugal exported many items as wheat, clothes, textiles, glass goods etc. to get gold. In 1488 B. Dias sailed round the Cape of Good Hope. It was in 1498 that V. da Gama reached Calicut in India. He was much surprised at flourishing trade in the Indian Ocean. At this time Europe joined in the international trade network really.

In the Indian Ocean, Portuguese were one of many trading peoples and besides new people. It is wrong that Portugal deprived Asian peoples of their trade interests with the strong force. That is Eurocentric. In those days China stood on the top of navigation technologies, next Islamic world. European ‘caravel’ was an imitation of Arabian sailboat. Europe was a backward country. However, in the 16th/17th century European navigation technologies developed and in 1761 John Harrison invented a marine chronometer by which Europe sat on the top. But it was after 1800 that forces overwhelmed Asia.

I think that Islamic merchants knew the Cape of Good Hope because they traded from the western Mediterranean Sea to the eastern coast of Africa. Herodotus wrote unbelievably that Phoenician sailed from Egypt via the Cape of Good Hope, western coast of Africa and the Mediterranean Sea to Egypt again in the 7th century BC.

Asian rulers regarded Europeans as a good vassal who paid tributes (though items were poor) and begged trade\textsuperscript{16}. Europeans couldn’t invade Asia. A Hindu king admitted da Gama to trade and gave a resident place: Goa from his kindness. Certainly there were conflicts but if Portuguese could build a fortress, this was a weak point of Asian and African kingdoms and when they tried to invade into the inland, they were defeated, for example, Mutapa and Changamire kingdoms of southeast Africa in the end of the 17th century. Late started Europeans were the same. The East India Company of England sent the Emperor of Mughal a letter as vassal. In 1680 the English navy was defeated by the Maratha Confederacy, an Indian power. In 1722 the English-Portuguese allied forces were completely beaten by Indian pirates. In 1739 the Netherlands tried to land the kingdom of Travancore in southwest India in vain. In 1741 France was given a feud by the Mughal Empire. In the 18th century Arabians in Oman were the strongest power in the eastern coast of Africa and so Europeans were no match for them.

Why could Europe colonize the World at last?

Before the 19th century there was no difference in the military forces between all civilizations or rather Asian forces were superior to Europeans. I say another example: in 1521/22 the Portuguese navy was completely beaten by the Chinese. A Chinese local official admitted Portuguese to reside in Macao in secret to the Emperor in Beijing. Portuguese couldn’t take Macao by forces. About 320 years later: in 1842 Chinese junks were no match for British gunboats. The situation was now reversed in the 3 centuries. It was after 1880 that Europe could colonize Asia and particularly Africa. But Europeans strove to aim for the East since the 15th century persistently and continually though it was wrecked or defeated many times. Why? One answer is a ‘frustration civilization’ of Europe. Particularly a merchant class had much ‘frustration’. Not only Italian merchants, for
example, German merchant families Fugger and Welser gave a financial support to voyages of P. Cabral, F. Almeida and F. Magellan.

A more important answer was Ecological Habitat Segregation of wealth. I explain more about it in the chapter 5. To speak easily, Europe, in contrast with other civilizations, had a market system in which all people had a chance to take a part in a game to get wealth. All people could dreams of making a fortune at one stroke. So all people had ‘frustration’. Even a mere craftsman Columbus could try to adventure and big merchants and dynasties supported these adventurers. When an adventurer, a merchant and a dynasty had succeeded in a project, others, particularly other dynasties followed. Habitat Segregation of power worked also here. Therefore Ecological Habitat Segregations of power and wealth brought about ‘frustration of all people’ and it made Europeans go to the East persistently and continually.

4. Why did science and technology more develop in Europe?

What was the Renaissance?
The Renaissance was a discovery movement of the Greco-Roman art and science in the 14th-16th century generally. But this phenomenon began already from the 12th century (the Renaissance of the 12th century). I say only one thing here. It was the age of the Renaissance (12th-16th century) that Europe continued to imitate (I use here the word ‘copy’) the science and technology of advanced civilizations with effort.

The achievement of the Greco-Roman civilization wasn’t transmitted to Germanic world. They learned certainly Christianity, alphabet etc. but couldn’t receive it adequately. Knowledge of ancient civilizations was preserved in Byzantine Empire first and next it went to Islamic world, where the achievement of the ancient Orient and Persia had be preserved and the science and technology of Indian and Chinese civilizations be transmitted. Arabian Islamic civilization has not only received this advanced knowledge, but also developed it more and more. It was very important that a papermaking came from China in the 8th century. In Baghdad of the 9th century there were many bookstores. People can say that Arabian Islamic civilization stood on the top of knowledge in ca. 800-1500.

Ito(17) says that modern science didn’t break on in the 17th century. The sources of Galileo, Descartes, Newton etc. were in the 14th century and it could trace back to the 12th century, when Europeans studied the science and technology from Byzantine and Arabian. Until then European didn’t famous names as Euclid, Archimedes, Hippocrates, Ptolemy, even Aristotle. European intellectuals went to the Iberia, Constantinople and Sicily, where they translated Greek or Arabic documents into Latin or collect to go home. Universities were established in the 12th century, where Greek and Arabic literature was translated and taught to students. From the 12th to the 16th century Europe was the age of copy of advanced civilizations. I think that it was the Renaissance.

Achievement of advanced civilizations

**Medical Theories:** Hippocrates and Galen in Greece; al-Razi, Ibn Sina (Avicenna) and Ibn Rushd in Islamic world are very famous. **Astronomy** developed in Babylonia, India and Persia and was transmitted in Islamic world. Babylonia based also Greek astronomy, where Hipparchus guessed the earth to be spherical. Ptolemy developed it more. In China astronomy developed also from ancient ages. **Mathematics:** the decimal system and the concept zero went from India to Arabian Islamic world. **Law** and **theology** were influenced by Roman and
Islam. **Chemistry** and **optics** developed also in Islamic world.

A lot of technologies came from advanced civilizations: alphabet, calendar, iron-casting, waterworks, sailboat, carriage, canal, waterwheel, lighthouse, navigational implements etc. China was superior to others in technology. Gunpowder, cannon, compass, paper and printing are famous. Chang Heng (78-139) made the first celestial sphere and seismometer. He regarded the earth as sphere like Greek probably. Chinese invented stirrups and a crossbow. Also a mechanical clock! It is surprising that Chinese made ironworks by cokes in the 11th century.

**Surgery** and **dental surgery** was also a practical learning. From the age of Mesopotamian civilization it developed, and surgeries involved sometimes dissection. So a human body system came to light gradually. Egyptian would have knew it more because they made mummies. In a document of the 15th century BC. the relation of heart to blood vessel was written. It was 3000 years before W. Harvey (1578-1657) discovered the system of the blood circulation. Surgical and dissection knowledge of the ancient Orient was transmitted to Greece. Though it is said that Alkmaion and Herophilos dissected not only mammal, but also a human body, surgeons of low class operated in reality. Hippocrates dissected never a human body because of religious reason. Ibn Sina also never because Islam prohibited dissection of a human body. Probably they guessed a human body system from mammal. In India surgical operations were common, but famous doctors as Caraka (the 2th century?) and Susuruta (the 4th century?) didn’t dissect a human body. In China acupressure, acupuncture and moxa cautery developed. People would have needed knowledge of a human body system for that. About 500 BC. Chinese knew the circulation of blood. In the age of civil war (403-221 BC.), dissection of a human body was recorded. In the second century a surgical operation with anesthesia was performed. Dissection of a human body was performed in the 11th/12th century frequently, but after that there was no record of dissection of a human body. Dissection of a human body was avoided by moral reason in China. In principle the system of a human body was guessed from dissection of mammal or surgical operations in advanced civilizations. But it was surgeons of low class that operated in reality in every civilization.

**Pharmacy and immunology** developed in India and China particularly. In India, people tried to prevent smallpox by means of a vaccination that used pus of a patient instead of pus of a sick cow. E. Jenner (1749-1823) invented this way much later. In China people powdered pus of a patient and sucked it from a nose. Chinese was eager in pharmacy.

Science and technology was one of trade goods. People in advanced civilizations exchanged knowledge and copied it mutually. Also in this case, Arabian Islamic world was the center where all information came from other civilizations like a economic trade. Before the 12th century Europe was still outside.

**Why didn’t the Industrial Revolution come about in China?**

Technology differed from science in advanced civilizations. Slaves or craftsmen of low class did handiwork. As mentioned above, a surgical operation or dissection was performed by surgeon, who was not doctor or scholar or philosopher but a sort of craftsman. Their social position was low. Here I call them ‘artisan’. Technology was carried by artisans. On the other hand the intellectuals (philosopher, scholar, thinker) do ‘science’. They thought and debated or guessed or discovered abstract ideas and theories. This was science in advanced civilizations. For example, Chinese Chang Heng, an official and astronomer, invented and designed a celestial globe, but it
was an unknown artisan that built it in reality.

European civilization was the same for a long time. A Surgeon was an artisan. Physicians in universities taught Greek and Arabic medical theories. They didn’t contribute so much to a practical cure. Surgeon=artisans took on much in reality. Though the Christian Church didn’t approve dissection of a human body, it was performed already in the beginning of the 14th century at universities of Padua and Bologna, in 1499 in university of Paris. Surgeon=artisans operated dissection. In the 16th century dissection was performed frequently. But a physician lectured only literatures of Galen or Avicenna (Ibn Sina) and simultaneously a surgeon performed dissection. It was so epoch-making that a physician Andreas Vesalius (1514-1564) dissected a human body with his own hands. In the 17th century physicians in universities performed dissection by themselves gradually as Rembrandt painted in 1632. Why did dissection of a human body come to common since the 16th century in Europe? Because the social position of artisans became higher than before. Why higher than before?

It was artisans that led a practical learning (technology) in all fields. It was smiths that made cannons, mechanical clocks etc. The father of Gutenberg (1400?-1468) was also a blacksmith. Gutenberg was a printer=artisan. Raphael (1483-1520), Michelangelo (1475-1564) and Leonardo da Vinci (1452-1519) were only painter=artisans. The last two persons performed dissection by their own hands. People identified artisans with magicians or entertainers. But a juggler handling some object, for example, knew the principle of motion from his experience. In a sense ‘Father of modern science’ Galileo (1571-1630) was a high rank artisan or high rank magician because today’s experiment was a magical or miraculous show in those days. Why did artisans of low class come to heroes in Europe? Why did the technology of artisans stop at a certain level in advanced civilizations? As mentioned above, the iron-making by cokes was achieved in the 11th century China. It was 700 years before England! Why did the Industrial Revolution occur in China? A steam engine was invented in Ottoman Empire 300 years before an Englishman, Newcomen. But it was only used to grill mutton. Why? An answer runs as follows: in China and the Ottoman Empire a power was centralistic and if an artisan made a strong weapon, he would have been dangerous person against the Emperor. Printing offices were closed in the Ottoman Empire because a dangerous thought could spread. In China the Emperor closed a shipbuilding yard. The centralization of a power stopped a development of technology. Or Ansary(18) says that the Emperor could mobilize a lot of working population in China and the Ottoman Empire and so he didn’t need machinery. In Europe the work force that a power or a company (a big merchant) could mobilize was limited. So they needed machinery. In this way machines was improved and invented in Europe. This explanation comes from Habitat Segregation of power. Another answer is mine and more important. In Europe there was a social- and market system in which artisans could gain in wealth. Artisans would never make, improve and invent machines, if they couldn’t get some wealth. There was a chance of getting wealth for all people in Europe. That is Habitat Segregation of wealth.

Steer to the science course (17th – 19th century)

Both the Scientific Revolution in the 17th century and the Industrial Revolution in the 18th century came from practical ideas of artisans. Henry(19) defined the scientific method as ‘measure, experiment and observe’. This is the method of artisans, not of ancient philosophers or scholars of universities. Since the 15th century the social
position of artisans went upward gradually because European powers needed technologies of artisans to get treasures of the East. The technology of artisan began to fuse with knowledge of universities. The intellectuals or powers began to acknowledge the importance of ‘measure, experiment and observe’ as Francis Bacon (1561-1626) who was also a statesman. Heroes of the Scientific Revolution were artisan: Kepler, Galileo, Descartes, Leibnitz, Newton etc. because they measured, experimented and observed. This method is modern science. I call the world of this method the ‘science course civilization’. Europe became the science course civilization, in contrast with advanced civilizations which remained the ‘humanities course civilization’. When Europe became aware of the importance of the ‘science course’ in the 17th century, it overtook advanced civilizations in total knowledge. Only Europe has steered to the science course. Imagine the names of heroes of the 18th century Industrial Revolution. They came from all artisans: men of the science course.

In the 19th century the technology of artisans was systemized and integrated to university, for example in Germany, universities was reformed or instituted with the science course, and besides colleges for training engineers, so-called TH were instituted. The word ‘science’ come from Latin ‘scientia’ which meant knowledge. This was a term of the humanities course. Since the 19th century ‘science’ became a term of the science course. A new word of ‘scientist’ was coined.

From the 12th to the 16th century Europe continued to copy the knowledge and technology of advanced civilizations. In this course a practical learning of artisans created a motive power of modern science. Europe steered from the abstract humanities course to the visual science course. The science course visualizes all phenomena by numerical value. The method of the science course produced modern science in the 17th century, the Industrial Revolution in the 18th century and was systemized in the 19th century. In this way the victory of Europe became decisive. Heroes of this achievement were not intellectuals in universities but many nameless artisans.

Certainly to measure, to experiment and to observe was performed in advanced civilizations, but it stopped at a certain point. Only Europe could go beyond this point. Why? In addition to Ecological Habitat Segregation of power, Ecological Habitat Segregation of wealth moved the position of artisans upward. It was Habitat Segregation of wealth that developed the method of the science course in Europe. The improvement in technology was tried because all people had a chance to get wealth. There was a market system in which all people could gain in wealth. The basis that Europe steered to the science course was Habitat Segregation of wealth. Why was a market system in which all people had a chance to get wealth (Habitat Segregation of wealth) formed only in Europe? I wrote the answer in the last chapter.

5. Why was Capitalism born in Europe?

Monetary civilization

For the present I define capitalism as a system in which free moneymaking race spread in an allover society or a civilization throughout. I understand that this was achieved by the French Revolution by which the feudalism was abolished and all people could join in moneymaking race with no relation to their social positions. Certainly there was a sort of capitalistic phenomena before that. Abu-Lughod says that Italian cities were capitalistic in the 13th century. He called it the ‘merchant capitalism’. Jones says that Asian emperors could collect taxes from the mass of people, so didn’t have to be supported from wealthy merchants in contrast with European
powers. Therefore a merchant class couldn’t grow and give birth to capitalism in Asia. He says also that a lot of daily necessities was exchanged from earlier ages and people joined in a market more frequently in Europe than other civilizations. Though his book was Eurocentric in a certain degree, I agree that wealth was not centralized and participation of people in a market was much more in Europe than other civilizations. In Europe not only weak lords, but also kings depended on merchants though ‘merchant capitalism’ existed more or less in every civilization.

However, a part of upper classes monopolized wealth in other civilizations as China or Ottoman Empire. Upper classes were the emperor’s family, officials and big merchants. In this societies fluidness of wealth is little. To fluidize it, a market place must be near a village and village inhabitants participate in a market economy. It is important that local markets are many and spread everywhere. In this way not only big merchants and officials, but also small merchants, retailers, artisans and peasants could have a chance to participate in profits. All people had a chance to get wealth in Europe. That is Ecological Habitat Segregation of wealth. Saito(22) proved that the average of an individual’s income was higher since the 15th century in Europe than in Japan and China.

I use a words: ‘the network of the monetary relations’ here frequently. This is a situation in which people relate themselves mutually by money in their daily life. This situation existed in cities of advanced civilizations but it was only Europe that spread in rural areas. A society in which the network of the monetary relations spread not only in cities, but also in villages as the consequence of Habitat Segregation of wealth, I call this society ‘monetary civilization’ to distinguish from capitalistic civilization since the 19th century.

Monetary civilization, that is, the network of the monetary relations in allover society inclusive villages, is as follows: in the beginning of product-monetary economy, people used money only in cities or stations on the road between cities. In villages there was a world of self-sufficiency and barter. If a peasant had surplus products, he could sell it and get money in a city. He could do shopping with this money. But when he went home in his village, money lost the value because the network of the monetary relations didn’t exist. In monetary civilization all people can or must buy daily necessities by money in a village, not only in a city market. To form this situation, there must be craftsmen or merchants besides full-time peasants because exchanges between the both could be made by money. For example, a full-time peasant buys a spade which a blacksmith makes. This blacksmith buys bread from a baker, who buys grain from a full-time peasant. A merchant in a village buys an agricultural product from a peasant and sell it in a city market and bring money in his village. This is the ‘division of work’ between (full-time) peasants and various craftsmen in a village. I would like to call it Habitat Segregation of work in a village.

In Europe there was Ecological Habitat Segregation of market, and this brought Habitat segregation of wealth that all people had a chance to participate in a market. In other civilizations the number of markets was limited. In Islamic world or China there were some big cities. Baghdad of the 9th century and Hangzhou of the 13th century had a million population. Cairo of the 14th century had a half million. Inside these big cities there were many markets, for example, 35 in Cairo, 10 in Hangzhou. But the number of cities was a few. Though a population of a city was much less in Europe: thousand level generally and ten thousand level at the most, the number of cities was much more. In the 12th century there were already countless market places (cities) in Europe. In other civilizations, to speak easily, product-monetary economy was centralized in some super-big
cities and the rest was vast rural areas. A population could be scattered in Europe (Ecological Habitat Segregation of population) and it brought countless market places (Ecological Habitat Segregation of market). As deserts in Islamic world and mountains in India and China are vast, that is, plains are relatively little, a population couldn’t be scattered or dispersed or spread. Here Habitat Segregation of market wasn’t formed. And even if a market disappeared, there were many other markets in Europe because a centralized power couldn’t control the whole market cities. Habitat Segregation of power also made the formation of local markets possible.

In Europe there was Ecological Habitat Segregation of population, power and market. This brought a market system in which all people had a chance to get wealth. That is Habitat Segregation of wealth. Moreover the division of work, that is, Habitat Segregation of work in a village developed in Europe. When Habitat Segregation of wealth united with the division of work in a village (Habitat Segregation of work), the network of the monetary relations was formed and spread in allover society inclusive villages. Monetary civilization was formed only in Europe. Why? Let’s research it from examples of the Ottoman Empire and China.

Ottoman Empire

This Empire existed until the beginning of the 20th century. The Emperor possessed the whole land and he only could order money-casting. In the Empire gold-, silver-, and copper coins were issued\(^{(23)}\). By the way, to research the network of the monetary relations in a village, we can see a cash payment of taxes because peasants had to have much money for that. Hayashi\(^{(24)}\) says that people paid various taxes not with products but with money in the 16th century. Peasants sold surplus products in markets (cities) for that. Certainly in the 16th century a population grew and market cities also increased, and Miura\(^{(25)}\) estimated 123 cities in the Anatolia of the last half of the 16th century but 69 cities concentrated in the northeast Anatolia near Istanbul. The area of the Anatolia was almost the same with German area which had ca. 2000 little cities in 1300. So the number 123 is not enough and the concentration of northeast area has a problem. I think that cash payment areas was limited in the 16th century: a part of the northeast Anatolia, coasts of the Balkan Peninsula and low Egypt. Peasants transported their products to tax-collectors in other areas. But in the 17th century cash payment areas spread because of an increase in market place.

If we can say monetary civilization in the Ottoman Empire, it would be since the 16th /17th century, particularly in the 18th century. However, we have no record to support monetary civilization in the Ottoman Empire. Why? The answer is as follows: there wasn’t here the division of work (Habitat Segregation of work) in a village. Certainly there were textile craftsmen and sugar refiner in Egyptian villages. But their products were not daily necessities of village inhabitants but exporting goods to Cairo. And the formation of local markets was so late and the number of local markets was also much less than in Europe. This caused also an obstacle to construct the network of the monetary relations in a village.

China

Coins in China were copper. Silver and gold were used by measure and for international trade. From the 16th to the 18th century a mass of silver continued to come from America. So tax-payment by silver was admitted in the 16th century though people paid taxes with their products before then. It is a question if the network of the monetary relations in a village spread or not. Li\(^{(26)}\) says that market places increased from the 16th century and
added to ca. 700 in the 18th century Fujian province whose area was almost equal to England. This phenomenon corresponded also to other provinces in plain from the Yellow River to the Yangtze River. Therefore peasants could have had a chance to get wealth from near market place in the 18th century, when peasants came to use copper coins. In the same century land rent which a tenant paid to a landowner changed from products to cash.

However, before the 19th century, no, in the 19th century also, we can’t say the monetary civilization in China. Uchiyama(27) says that a daily life with copper coins spread in rural regions near Beijing in the 1940’s at long last. Peasants used copper coins sometimes in a near market in the 18th/19th century but self-sufficiency and barter was dominant.

Why didn’t monetary civilization emerge in China? There was no division of work in a village like Ottoman Empire. There was no craftsman who made daily necessities for village people. There wasn’t Habitat Segregation of work in a village also in China.

Europe and money

It was since the 12th century that we can talk monetary economy in Europe. From the 12th to the beginning of the 16th century except the 14th century, silver mines was discovered. But it was more important that a mass of silver came from America from the 16th century by which insufficiency of money-material was cleared up. When did Europe come to monetary civilization? The preconditions were Habitat Segregation of market, wealth and work, by which the network of the monetary relations in a village was formed and spread. One more important factor: sufficient amount of money for a population of a society. Therefore we can’t talk it before a big inflow of American silver.

A precondition was Habitat Segregation of market because people could get money from here. Already in the 14th /15th century there existed a market city with ca. 100-170 square kilometer interval(28). Village people could come to a city and go home in a day. Another precondition was Habitat Segregation of work in a village. Postan(29) pointed out existence of craftsmen and merchants in villages in the 13th century England, and S. Ito also says that various craftsmen lived and exchanged daily necessities with peasants in the 13th /14th century Europe. But Habitat Segregation of work in a village was not so clear. And in those days, money was a supporting actor. Barter system was the mainstream, not only in villages, but also in cities. Monetary civilization emerged never soon in Europe.

Since the 16th /17th century very various craftsmen and merchants in villages come to be recorded clearly in many literatures, which indicated so-called Habitat Segregation of work in a village. The division of work developed in a rural area between a central village and sub-villages at first. That is Habitat Segregation of work between a central village and sub-villages. Craftsmen who made daily necessities was important: tailor, smith, carpenter, butcher, miller, shoemaker, baker, tub-maker, brewer, surgeon=barber, retailer, public house etc. The monetary relations between various craftsmen and peasants or between a craftsman and another craftsman contributed to bring about the monetary relations between a peasant and another peasant. I analyzed once a testament of a village-miller in the 18th century Germany. He had relations of borrowing and lending money with peasants, a baker, a public house, a joiner, a barber, a weaver, a carpenter and even his lord. When the network of the monetary relations in a village was formed, borrowing and lending of money between village-inhabitants became common. A church or a public house also lent money. It is clear that the network of the
monetary relations in a village spread in the 17th and 18th century. Also in the 16th century?

A public house in a village sold sometimes daily necessities to village-inhabitants. For example in the 18th century Germany, a public house in a village got the monopoly from his lord and sold daily necessities as beer, pipes, tobaccos, bread, tar, whale oil, soap, shovels, spades etc. Since the 16th century public houses in the Tyrol sold grain, livestock, woods and food. A public house in a village also had a function of a bank. Public houses appeared since the 13th/14th century in Europe. They increased since the 16th century and not only in cities, but also in center villages which had a parish church. In the course of the 17th century, public houses began to spread also in sub-villages. Kümin(30) says that public houses in villages had functions as market and bank and spread far in sub-villages until the last half of the 18th century. The spread of public houses promoted the construction of the network of the monetary relations in a village.

Since the 16th century various craftsmen inclusive merchants existed in villages. There was the buying and selling relations between craftsmen and peasants: at first by barter but gradually by money. In this way the network of the monetary relations spread from the 16th to the 18th century. This center was a public house in not a few cases. It is clear that the network of the monetary relations spread to a far rural areas in the 18th century.

The division of work in a village was a phenomenon only in Europe. This is a roll division in a rural community: the economic roll division besides the political roll division: a chief, notables, various watchmen etc. I think that the division of work in a rural community was Active Habitat Segregation because this phenomenon became clear since the 16th century when Active Habitat Segregation of space or time began but reserve judgment for the time being.

What gave birth to capitalism

First: the feudalism was abolished and so free business became possible for all people with no relation to their social positions. This was achieved by the French Revolution (in England earlier). Second: a mass production became possible by the Industrial Revolution. But these two factors only promoted the drive of capitalism smoothly. Capitalism came from monetary civilization. A basis of this civilization lay in a market system in which all people had a chance to get wealth (Habitat Segregation of wealth). It put all people into competition of moneymaking. In consequence, the rich on the one hand, the poor in the other hand. This phenomenon was performed not only in cities, but also in rural areas. It was important that competitions of moneymaking in rural areas became common. It was only in Europe that moneymaking race was performed in a village. Another basis of monetary civilization was the division of work (Habitat Segregation of work) in a village. This phenomenon was also characteristic of Europe. These two bases brought about the construction of the network of the monetary relations in a village. In this way money became ‘circular’ also in rural areas. This is just capitalism? Yes, except that the feudalism wasn’t yet abolished.

It was more important that all people became to be compelled to have money in monetary civilization. Here money became the necessities of life. As soon as the network of the monetary relations was constructed, barter system became very difficult. People must have money to buy something. Money became ‘absolute value’ also in villages. A social system in which people can’t live without money was born, and to speak better, it was a mental system which all people shared.
6. Conclusion

I repeated that all people had a chance in Europe to get wealth from a market system. That is Habitat Segregation of wealth which brought about competitions of artisans, and this led to the Scientific Revolution and the Industrial Revolution. And besides it brought about the network of the monetary relations in a village, which led to capitalism. Active Habitat Segregation of time that developed mechanical clocks comes also from Habitat Segregation of wealth. To speak easily, Europe is a moneymaking civilization. Why did all people have a moneymaking chance? Because Ecological Habitat Segregation of population and power brought about Habitat Segregation of market from which all people might get wealth.

Active Habitat Segregation comes from the intellectuals’ Christianity. The intolerance of the intellectuals’ Christianity caused the thinking way that put space or time or ‘race’ etc. in order and excludes ‘impurities’. Christianity of the intellectuals is uniform. It doesn’t tolerate mixture of the sacred- and the public world.

Habitat Segregation of population, power and market was ecological. These gave birth to Habitat Segregation of wealth. Habitat Segregation of work in a village was active. When two sorts of Habitat Segregation of wealth and work were united, the network of the monetary relations in a village was formed. This monetary civilization led to capitalism.

And Habitat Segregation of wealth steered Europe to the science course. The thinking way of the science course lies in measure, experiment, observe or classify and indicates by numerical value. An indication of numerical value is also characteristic of capitalism. It functions by the thinking way of the science course: an hourly wage, production, economic growth rate, stock price etc. Capitalism and the science course are also now accelerating.

To speak the truth I planned to explain why Japan succeeded in capitalism from my Habitat Segregation theory. But I must omit it because of limited space.

My book with more detailed information will be published in Japanese (Chikumashobo Press, Tokyo, May, 2003). I plan to publish in English version and now look for a good translator (Japanese→English) and a press in UK or USA.

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