

The Crisis of Total System – Economic Civilization and Change of Institutions –

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During the last two centuries, particularly in the latter half of twentieth century, the economy has made rapid progress, and we are now confronted with global collapse. We will discuss the process and stages of economic development in the two centuries, and analyze the change and structure of economic system. We can identify two types of society; the economic-social system and the socio-economic system. The former is an economy-oriented social system which is the present system, and the latter is a society-oriented social system which is the future sustainable one. In conclusion, we present the requirements of the sustainable Socio-Economic System.

Keywords: sustainability; growth economy; limits to growth, steady-state economy; and socio-economic system

I. Introduction

The Japanese economy conquered a slump, which lasted for a long period, and business results have recovered at a good pace. At present, the economy has continued to be in a good shape for the longest period experienced after World War II. On one hand, the local economy has remained sluggish. Major troubles and problems are seen in the whole economic society such as the near bankruptcy of the national government and local authorities, increasing crime & its lowering age, unprecedented accidents occurring in many places, collapse of education, etc. On the other hand, on the international aspect, there are many major variable factors such as resource & energy crises, global economic issues, terrorist attacks, the ever more confusing Middle East situation,

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petroleum price hikes, slowdown of the US economy, the tense situation in East Asia, etc. in the present globalized state of the world, and the future is extremely uncertain.

In such circumstances, we would very much like to know the future trend of not only the Japanese economy but also the Chinese economy which will largely contribute to the global economy. Mankind has achieved unprecedented physical prosperity in the twentieth century, and China and India with a huge population which had been left behind started to show a full-scale economic development at the end of the twentieth century. We are confronted with many problems of different kinds at present such as global environmental issues, resource & energy problems, food problems, etc. Whether the world will be able to continue to grow as before, or whether we will need to have a completely different concept must be one of the major problems both in and outside Japan. We would like to consider this issue by making “industrialization”, “institutionalization” and “total system” an axis with reference to debates on characteristics of growth and limits to growth.

II. Growth age and limits to growth

The twentieth century was the “century of wars” including the two World Wars and the Cold War, but it was simultaneously the “century of growth” where the unprecedented physical prosperity was achieved with the realization of rapid economic growth on a global scale especially for 50 years in the latter half of the twentieth century, backed by the development of scientific technologies accelerated by the fact that it was the “century of wars” in some aspects. However, the unprecedented physical prosperity not only widened the gap of the affluence and the poverty but also brought about crises of the being of society and mankind even in affluent regions. As a result, the global environment is approaching collapse, and it is unlikely to be reinstated. In this study, let's consider, starting with the characteristics of the economic growth which has brought about such a physical prosperity where we can see basic characteristics of the present state and its limitation.

1. Growth age

Understanding the present state is not so easy as people usually

think. The reason is that we are thrown into the very present age and cannot get out of that. Above all, the whole globe is unified at the present time because of globalization having been created. It is therefore even more difficult. In this study, let's look at the historical trend of the growth rates of real GDPs in the world and the country shares (Table 1) and the growth rates of the population in the world and the country shares (Table 2) for the period from A.D.0 to A.D. 2001 as part of the key for consideration.

From Table 1, which shows the historical trend of the growth rates of real GDPs in the world and the country shares, the following matters, etc. can be read. Firstly, 1) Growth rates started to rise in West European countries beginning with the United Kingdom where the industrial revolution firstly took place in the latter half of the eighteenth century, which enabled the U.K. to maintain its large share until the early twentieth century. Next, 2) the USA started to show rapid growth in the middle of the nineteenth century, and have continued to have an overwhelmingly large share after World War I. 3) The former Soviet Union, which opposed the USA in the Cold War, started to show growth a little later than the West European countries and maintained its large share until the 1970s. However, its growth rate has since fallen to a negative figure. Its share has therefore largely declined. 4) Japan started to grow a little later than the West European countries, and its share largely increased in the high economic growth period after World War II. In addition, 5) China and India achieved rapid growth after the 1970s. Their shares rapidly increased but are still far from their shares at the beginning of the nineteenth century. Lastly, 6) the world entered into the economic growth age during the period from the beginning to the middle of the nineteenth century, and further entered into the global growth age in the latter half of the twentieth century.

We could see the following matters, etc. by analyzing the relationship between these facts that we can see in Table 1 and the historical trend of the growth rates of the population in the world and the country shares presented in Table 2. Firstly, (a) the economic growth rates and the growth rates of the population are largely in proportion. Accordingly, (b) it can also be said that the trend of the economic growth rates is generally in line with the increase in the growth rates and the country shares of the population. Furthermore, (c) the share of the GDP in so-

Table 1 The historical trend of the growth rate of real GDPs in the world and the country share (from A.D. 0 to A.D. 2001)

A.D.	1~1000		~1500	~1820	~1870	~1913	~1950	~1973	~2001
France				0.37	1.43	1.63	1.15	5.05	2.20
			(4.4)	(5.1)	(6.5)	(5.3)	(4.1)	(4.3)	(3.4)
Germany				0.37	2.00	2.81	0.30	5.68	1.75
			(3.3)	(3.9)	(6.5)	(8.7)	(5.0)	(5.9)	(4.1)
UK				0.80	2.05	1.90	1.19	2.93	2.08
			(1.1)	(5.2)	(9.0)	(8.2)	(6.5)	(4.2)	(3.2)
W.Europe	-0.01		0.29	0.40	1.68	2.11	1.19	4.79	2.21
	(10.8)	(8.7)	(17.8)	(23.0)	(33.0)	(33.0)	(26.2)	(25.6)	(20.3)
USA				0.86	4.20	3.94	2.84	3.93	2.94
			(0.3)	(1.8)	(8.8)	(18.9)	(27.3)	(22.1)	(21.4)
Japan	0.10		0.18	0.31	0.41	2.44	2.21	9.29	2.71
	(1.2)	(2.7)	(3.1)	(3.0)	(2.3)	(2.6)	(3.0)	(7.8)	(7.1)
China	0.00		0.17	0.41	-0.37	0.56	-0.02	5.02	6.72
	(26.1)	(22.7)	(24.9)	(32.9)	(17.1)	(8.8)	(4.5)	(4.6)	(12.3)
India	0.00		0.12	0.19	0.38	0.97	0.23	3.54	5.12
	(32.9)	(28.9)	(24.4)	(16.0)	(12.1)	(7.5)	(4.2)	(3.1)	(5.4)
Asia	0.00		0.13	0.29	0.05	0.97	0.82	5.17	5.41
	(75.1)	(67.6)	(61.9)	(56.4)	(36.1)	(22.3)	(15.4)	(16.4)	(30.9)
Former Soviet Union	0.06		0.22	0.47	1.61	2.40	2.15	4.84	-0.42
	(1.5)	(2.4)	(3.4)	(5.4)	(7.5)	(8.5)	(9.6)	(9.4)	(3.6)
Latin America	0.07		0.09	0.23	1.22	3.48	3.42	5.38	2.89
	(2.2)	(3.9)	(2.9)	(2.2)	(2.5)	(4.4)	(7.8)	(8.7)	(8.3)
Africa	0.07		0.07	0.15	0.75	1.32	2.57	4.43	2.89
	(6.9)	(11.7)	(7.8)	(4.5)	(4.1)	(2.9)	(3.8)	(3.4)	(3.3)
World average	0.01		0.15	0.32	0.93	2.11	1.82	4.90	3.05
	10	12	25	70	111	273	533	1602	3719

(Source) Author: Angus Maddison (Edited and translated by Hisao Kanamori), *The world history of 2000 years by economic statistics*, published by Kashiwashobo in 2004. Pages 411 to 413.

(Note 1) The numerical value in the upper row for each country and region is an annual average compounded growth rate (%), and the value in the lower row is the share of that country and region of the world total (%). The values in Asia do not include values of Japan. The values in the left end of each country and region is a share (%) in A.D. 1, and the values in the lower row of the world average are the total real GDP (Unit : 10.0bn, Geary-Khamis \$ 1990) in the world in A.D. 1 and at the end of each period.

(Note 2) Values in bold in the upper row of each country and region are values exceeding a growth rate of 1.0%, and the values in bold in the lower row are values exceeding the share value of the population more than 1.0 point.

Table 2 The historical trend of growth rates of the world population and the country shares (A.D.1 ~ A.D.2001)

A.D.	1~1000	~1500	~1820	~1870	~1913	~1950	~1973	~2001
France	0.03 (2.2) (2.4)	0.17 (3.4)	0.23 (3.0)	0.42 (3.0)	0.18 (2.3)	0.02 (1.7)	0.96 (1.3)	0.48 (1.0)
Germany	0.02 (1.3) (1.3)	0.25 (2.7)	0.23 (2.4)	0.91 (3.1)	1.18 (3.6)	0.13 (2.7)	0.63 (2.0)	0.15 (1.3)
UK	0.09 (0.3) (0.7)	0.14 (0.9)	0.53 (2.0)	0.79 (2.5)	0.87 (2.5)	0.25 (2.0)	0.50 (1.4)	0.22 (1.0)
Western Europe	0.00 (10.7) (9.5)	0.16 (13.1)	0.26 (12.8)	0.69 (14.7)	0.77 (14.6)	0.42 (12.1)	0.71 (9.2)	0.32 (6.4)
USA	0.06 (0.3) (0.5)	0.09 (0.5)	0.50 (1.2)	2.83 (3.2)	2.08 (5.4)	1.21 (6.0)	1.45 (5.4)	1.06 (4.6)
Japan	0.09 (1.3) (2.8)	0.14 (3.5)	0.22 (3.0)	0.21 (2.7)	0.95 (2.9)	1.32 (3.3)	1.14 (2.8)	0.55 (2.1)
China	0.00 (25.8) (22.1)	0.11 (23.5)	0.41 (36.6)	-0.12 (28.1)	0.47 (24.4)	0.61 (21.7)	2.10 (22.5)	1.33 (20.7)
India	0.00 (32.5) (28.0)	0.08 (25.1)	0.20 (20.1)	0.38 (28.1)	0.43 (24.4)	0.45 (21.7)	2.11 (22.5)	2.05 (20.7)
Asia	0.00 (74.2) (65.6)	0.09 (61.2)	0.29 (65.2)	0.15 (57.5)	0.55 (51.7)	0.92 (51.4)	2.19 (54.6)	1.80 (57.4)
Former Soviet Union	0.06 (1.7) (2.7)	0.17 (3.9)	0.37 (5.3)	0.97 (7.0)	1.33 (8.7)	0.38 (7.1)	1.44 (6.4)	0.54 (4.7)
Latin America	0.07 (2.4) (4.3)	0.09 (4.0)	0.07 (2.1)	1.25 (3.2)	1.63 (4.5)	1.93 (6.6)	2.73 (7.9)	1.96 (8.6)
Africa	0.07 (7.1) (12.1)	0.07 (10.6)	0.15 (7.1)	0.40 (7.1)	0.75 (7.0)	1.64 (9.0)	2.37 (10.0)	2.69 (13.4)
World average	0.01 23 27	0.10 44	0.27 104	0.40 127	0.80 179	0.93 252	1.93 392	1.62 615

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(Note 1) The numerical value in the upper row for each country and region is an annual average compounded growth rate (%), and the value in the lower row is the share of that country and region of the world total (%). The values in Asia do not include values of Japan. The values in the left end of each country and region is a share (%) in A.D. 1, and the values in the lower row of the world average are the total world population (Unit: 10 million) in the world in A.D. 1 and at the end of each period.

(Note 2) Values in bold in the upper row of each country and region are values exceeding an increase of 0.5%, and the values in bold in the lower row are a share of GDP exceeding more than 1.0 point.

called advanced countries, that is, Japan, the USA and Europe has so far been 2 to 4 times of the ratio of the share of population. On the other hand, in rapidly growing China, India and Africa, the share of the population to the share of GDP has been 2 to 4 times in reverse. In other words, (d) per capita GDPs of Japan, the USA and Europe are high and those of China, India and African countries are extremely low. Lastly, (e) before the industrial revolution, the rate of the share of the GDP and that of the population nearly agreed and no large gap was seen.

The characteristics that can be seen in Tables 1 and 2 are mostly widely known, but we would like to confirm two things. One is that as mentioned above, the GDP share and the population share corresponded to each other before the industrial revolution, but started to show major inconsistency after the industrial revolution. The affluence in Japan, the USA and Europe corresponds to the poverty in Asia and African countries. In other words, in the sense that the relationship between GDP share and population share which used to agree to each other started to become inconsistent, the growth after the industrial revolution divided the world where people were living nearly the same level of lifestyle in terms of affluence (poverty) into the countries and regions where affluent people are living and those where poor people are living.¹⁾

The other thing is that the economic growth was limited to Japan, the USA and Europe until the first half of the twentieth century but expanded to take place in the other countries in the world in the twentieth century, and especially in the third quarter of the twentieth century the average growth rate of GDP in the world was 4.90%, and in the fourth quarter of the same century the corresponding figure also showed a high rate at 3.05%. The world population started to show rapid increase in line with GDP growth after entering the twentieth century, which exceeds 6.0bn at present. In other words, the world real GDP and the world population both experienced unprecedented major growth over the last 100 to 200 years.

2. Limits to growth

As mentioned above, real GDP in the world and the world population rapidly increased for the period of these 100 to 200 years. Following

the West European countries which started to grow from the latter half of the eighteenth century to the middle of the nineteenth century, other countries and regions excluding China, India, etc. also started to show economic growth in the late nineteenth century and continued to grow until the early twentieth century. The world average for the period from the end of World War II to the early 1970s thus achieved a remarkable growth rate of 4.90%. After that, even China and India with huge populations, (the combined population of these two countries exceeds 40% of the total world population) which had been called "Sluggish Asia" and had been left behind in terms of economic growth until the middle of the twentieth century, started full scale growth in the third quarter of the twentieth century, which made the whole world enter into a growth age²⁾.

However, we think that the time has come when we must seriously consider the problems such as whether we should pursue a similar growth rate as before in reality or whether on the earth we should even pursue growth itself, in consideration of various phenomena such as resource drying-up, global warming, seed extinction, forest destruction, desertification, etc. In fact, D. H. Meadows, D. L. Meadows, J. Randers, and W.W. Behrens III had already warned in the early 1970s concerning this issue in their *The Limits to Growth* (published in 1972)³⁾. *The Limits to Growth* became a bestseller in the world, partly helped by the occurrence of an oil crisis in 1973, the year after it was published. The publication played a major role in raising awareness and interest in environmental issues. However, on the other hand, the phrase, *The Limits to Growth* was often misunderstood and was used in an extreme simplification, because only resource drying-up was taken up in a sensational manner⁴⁾. After that, for thirty years, time has passed almost uselessly until today without the true intention of their broadcasting its warning being understood.

The "Limits to Growth" asserted by them are not the direct and physical limits, but the "limits of throughput". In other words, the "Limits to Growth" are the "limits of the capacity of the source of the earth" which provides substances and energy and the "limits of the capacity of the sink of the earth" which absorbs pollution and wastes. It means the limits to growth caused by cost increases relating to the source and sink of the earth, and does not mean the direct drying-up of resources

and energy. It is necessary for the activities of mankind to be held within the scope of the “limits to the capacity of the source of the earth” and the “limits to the capacity of the sink of the earth” (“the supporting ability of the earth”) so that economic society can remain sustainable. However, the greater the accumulated resource stock, the longer it is possible to dig out resources and emit polluted substances at an unsustainable pace. Overshoot will therefore occur beyond the limits⁵⁾.

As at 1972, when *The Limits to Growth* was published, the activities of mankind were within the scope of the supporting ability of the earth (= the limits of the earth) without problems. According to the simulation analysis by their computer model, the living standard was to continue until 2015 in the worst scenario, and as at the point of that time the end of the growth was estimated to come fifty years later. However, 20 years later, when the revised edition of the second work of the series, *Beyond the Limits*⁶⁾ was published, the activities of mankind had already passed the limits to the capacity of the earth (“overshoot”), and the situation had aggravated to the state where they could not help but assert that what should be done is to “draw back” the world to the sustainable domain. According to the study by M. Wackernagel et al., the activities of mankind exceeded the supporting ability level in 1980, and has already “overshot” the sustainable level by approximately 20% at present on a global basis.⁷⁾ In *Limits to Growth: The 30 years Update*, simulation analyses are carried out in ten scenarios on what sort of countermeasures can be taken so that that “overshoot” cannot bring about “collapse”.⁸⁾ The results of the analyses clarified that there is a high possibility that the resource consumption and emission of pollution in the world had already passed the limits to the sustainability, and the application of only technological solutions and economic measures is not sufficient to avoid global collapse. It is unavoidable to change our lifestyle itself (to give certain restriction to pursuit of physical desire or control the population). In other words, we now need to draw attention not to aiming for technologies that can change the limits but to the targets and desires which promote growth.⁹⁾

In this way, the future of the earth has become even less optimistic. However, it is difficult to have people obtain general understanding concerning the limits to the earth, because the first decade in the twenty first century is still in the growth age in the scenarios in *Limits to Growth*:

The 30-years Update, as in the scenarios in *The Limits to Growth*. As a matter of fact, in the present situation, growth policy is considered to be the only policy with the means to solve various problems in these modern times. We must admit that the time and choices left to mankind are getting more limited.

III. The age of economic civilization

In the second paragraph, we have looked at the economy and population in the world which showed rapid growth in the last 100 to 200 years and especially in the last 50 years, and the loading (= "ecological footprint") given by the activities of mankind having largely "overshot" the limits to the earth, and we are now in a stage of "drawing back" to within the scope of the supporting ability of the earth. Here, we would like to consider why such explosive growth was possible, and then what was brought about by that at the present time.

1. "Classical industrial economic system" (Industrial society)

As is clear from Tables 1 and 2, Western Europe certainly led the change in the economy and population for the last 200 to 300 years. That has expanded to include the rest of the world today. In the economic development stage theory, starting to show economic development is called "take-off". What enabled the Western European countries to "take off" is the industrial revolution as is widely known. However, for the economy to "take-off" from the "traditional society", conditions to enable that (the period of the prerequisites for the take-off) must be prepared. Such conditions had been prepared in Western Europe through the liberalization of mankind by the Renaissance, individualization of religion by the Religious Revolution, elucidation of the laws of nature by the Scientific Revolution, security of the basic human rights by the Civil Revolution, etc. The Industrial Revolution was established, triggered by the invention of machinery and revolution of mechanical power in the U.K. in the latter half of the eighteenth century when such conditions were first prepared, and enabled mass production in the major industries under machinery system. After that, industrial revolution took place in the first half of the nineteenth century in France, in the middle of the nineteenth century in Germany and the USA a little later,

and from the middle of the nineteenth century in Russia and Japan.

The industrial revolution which started in the UK has expanded from Western Europe to the USA and Japan. What should be particularly noted here is that the "take-off" was an economic "take off" from the social and cultural foundation in the "traditional society" even in Western European countries including the UK, which preceded other nations. In other words, the "take-off" was an economic "separation" (severance) from the social and cultural foundation of the "traditional society". Such conditions were therefore necessary to be prepared and such power was needed to be given. The conditions were the spirit of rationalism which had been prepared by the Renaissance, Scientific Revolution, Civil Revolution, etc. and "thought of contract society" on which reasonable individuals are assumed to be based. The fact that scientific technologies which were born under such spirit and thought were applied to industries (the industrial revolution) became its direct power.

The greatest factor which made the economy start to grow was the industrial revolution. However, there was scientific revolution at the bedrock of the industrial revolution. Accordingly, without this scientific revolution, it is impossible to understand the industrial revolution and the economic growth after that. What is scientific technology? A lot of natural laws were elucidated, triggered by the scientific revolution around the seventeenth century. Scientific technologies were created by science being connected to technique and skills. These scientific technologies were connected to industries and revolutionary change (major industries under machinery system) was brought about in the production method of industries. The great change in the production method of industries is the industrial revolution.

In this way, scientific technologies brought about revolutionary change in the production method of industries by connecting to industries and created not only a new production method completely different from that seen in the conventional farming villages which were directly connected to nature or tradition, but also a new way in which organizations and industries should be, lifestyles and communities of people should be, and people should think. In that sense, the industrial revolution progressed to convert "farming villages" which had been harmonized with nature and tradition to "industrial society" which

liberated people from natural and historical restriction. In other words, the industrial revolution (industrialization) was a process of conversion from a "farming society" where agriculture was the core of industries and living to an "industrial society" where industries are the centre of economic society. However, the fact that the industrial society (industrial economy) was the economy severed from natural and historical restriction enabled rapid growth as well as the liberalization from restriction of the social and cultural foundation which was basically closely connected to nature and tradition. Simultaneously, it became a fundamental problem of various issues actualized in modern economic society.

By the way, regarding the relationship between farming society and industrial society, between industrial society and organizational society, or between organizational society and information society, it is generally considered that a society will become the latter after the end of the former in each pairing. However, we consider it more likely that it is not the case and that transition takes place while two industries are overlapping. In Figure 1, where the ages are divided by farming revolution, industrial revolution, organization revolution (the second industrial revolution), information technology(IT) revolution, and service revolution into the four types of societies, the period of a-c, b-d, c-e, d- indicate farming society, industrial society, organizational society, and information society, but farming society and industrial society are overlapping in the period of b-c, industrial society and organizational society are overlapping in the period of c-d, and organizational society and information society are overlapping in the period of d-e. Industrial revolution makes farming society to "take-off" to industrial society. That is a "take-off" from a Catholic world of the "traditional natural law" to the Protestant world of the "modern natural law". The organizational revolution (the second industrial revolution) after the middle of the nineteenth century produced large-scale organizations, and increased the importance of information and knowledge for organizational management. The information technology revolution in the latter half of the twentieth century further strengthened the characteristics of organizational society as the organizational revolution further strengthened the characteristics of industrial economy.

In any case, we would like to confirm here that the application of

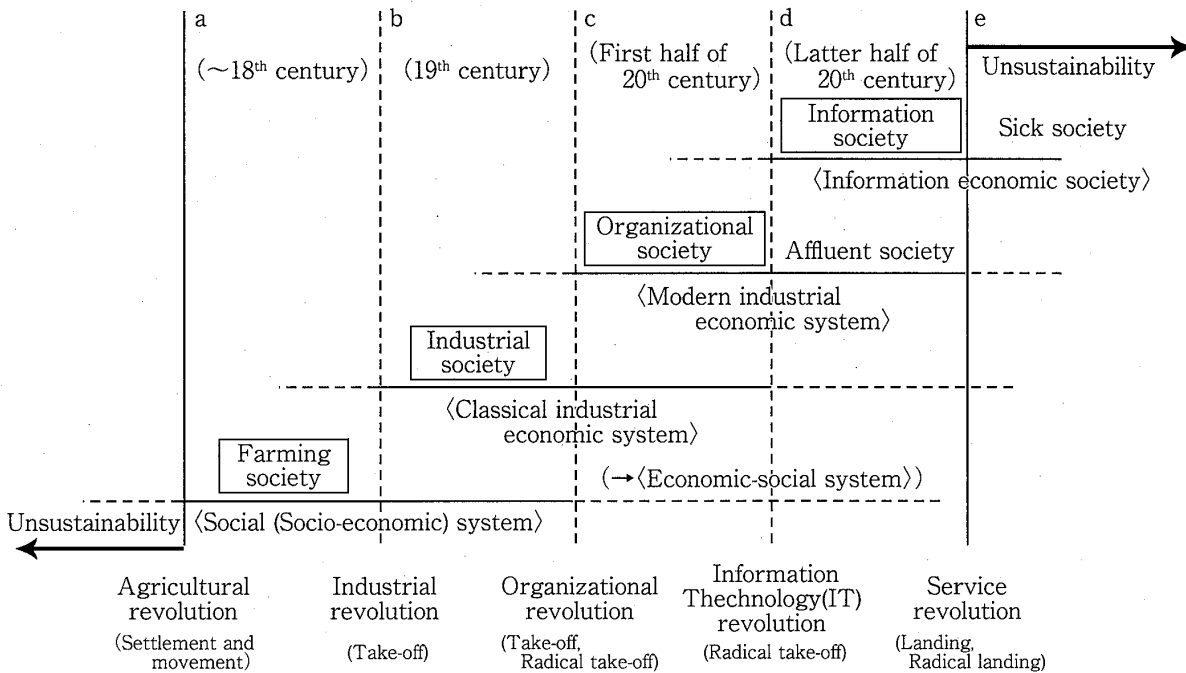


Figure 1 “Social (Socio-economic) system” and “Economic-social system” (Economic civilization)

scientific technologies to industries brought about major change (industrial revolution) mainly in how production in industries should be, and scientific technologies continued to show rapid development after that until today, and they were applied to all kinds of industries and domains in society, and became the greatest factors which supported the “growth century” in the twentieth century.

2. “Economic social system (Economic civilization)

According to Figure 1, our society is now shifting from the stage of organizational society to the stage of information society. We would like to take the essence of an “organizational economic system” and an “information economic system” as an “economic social system”. An “economic social system” is a system where the economy (partial system) directs society (total system). In other words, it means that the “age of economic civilization” where the economy decides the direction of the whole society will come in full strength. On the other hand, a farming society is a “social (socio-economic) system”. Accordingly, a farming society will be led to “economic social system” through the

intermediation of a “classical industrial economic system” (industrial society). It is a conversion from a farming society as a total system to an industrial society without the nature of totality. The evolution to an information society after that is a process where the nature of totality will be lost.¹⁰⁾

The “take-off”, which was conversion from a farming society to an industrial society, was “separation” (severance) of the social and cultural foundation of the “traditional society”, that is to say, from the natural and historical foundation deeply related to that foundation (See Figure 4 which follows). This separation (severance) took place not only in reform simply in the production method of industries but also in major reform in the whole of social economy including lifestyle also in the UK and France which experienced their industrial revolution earlier. However, the effect of industrial revolution on Germany, the USA, Russia and Japan, which were late starters, was great. The reason is that in the countries and regions of the late starters, the nature of the separation (severance) from the social and cultural foundation in these societies had to be stronger. That fact led to their nationalism in Germany and Japan, and led to the adoption of the socialism system through the revolution in Russia, and the great price that they had to pay.

In countries and regions, which were later starters, the industrial revolution brought about both major advantages and drawbacks. This can be said about Germany with a similar social and cultural foundation, but in Russia and especially in Japan where social and cultural foundations were different from those in Europe, the industrial revolution meant not only a mere “take-off” from the social and cultural foundation of their own but the social and cultural foundation itself also had a nature of a “take-off”. We would like to call the “severance” of the social and cultural foundation itself (the “social platform” of such a society), that is to say, the “social take-off” from our social, cultural and historical foundation a “radical take-off” to differentiate it from the mere “economic take-off” from the social and cultural foundation. Experiences in the industrial revolution and organizational revolution had strong nature of a “radical take-off” for Russia and Japan and especially for Japan.

In this respect, the USA was a unique country. In other words, an industrial revolution took place in the middle of the nineteenth century, but in the case of the USA the founding of the country itself was a

“breakaway” from the traditional society. In fact, Declaration of Independence and the US constitution were based on the spirit of modern civil society in the eighteenth century. In that sense, the USA was born, expressing the social and cultural foundation of industrial society and “economic-social system”. Accordingly, the industrial revolution did not have the nature of a “radical take-off” for the USA, and the USA did not even have the meaning of a “take-off” in the essence. Conversely, it can be said that the USA was a unique country which started as a society that had a completely “radical take-off”.

However, why did an industrial revolution have such a major effect? The secret is the power of scientific technologies which had a decisive role in industrial revolutions. In the twentieth century where mankind has achieved an unprecedented physical prosperity, it is extremely difficult for human beings living in modern times to truly realize how great the role of scientific technologies was in the process of industrialization in the world, as such prosperity is considered natural. The power of severing society and economy from the social and cultural foundation and the natural and historical foundation was certainly given by scientific technologies in the modern age. Scientific technologies were the centre of the modern European civilization, and its base is the “rationalism”. The major premise of scientific technologies in the modern age is the dualism of matter and mind after Descartes. Its feature is that the subject and the object are separated, and what is outside oneself is objectified and operated and controlled (“the world view of the theory of mechanism” and “Idee of natural control”). The development of science (technology) is a promotion of specialization of professional areas, and a further increase in the possibility of operation (promotion of standardization).

Heidegger considered the essence of scientific technology as the “rule of the rack” (Herrschaft des Ge-stells), and Gadamer considered the “superiority of method” (Ubergewicht der Methode) over the being to be the essence of modern technology.¹¹⁾ The special characteristics of “rule of the rack” of scientific technology and the “superiority of method” of modern technology have brought about the “greatest risk” (die höchste Gefahr) that is “forgetfulness of being” (Vergessenheit des Seins). The concrete results of such risks are the “take-off of the economy” from the social and cultural foundation, and the “radical take-

off from society” from the social and cultural foundation. The initial application of scientific technologies with these characteristics was made for the industrial revolution. As a result, the “social (socio-economic) system” in a farming society was converted to a “classical industrial economic system”. It was a conversion to a system with a fundamentally different nature concerning “being” (sein). We consider that they meant a “take-off” and a “radical take-off” in their essence.

In the period of conversion (the period of b-c in Figure 1) from a farming society to an industrial society, conflict and crash between the “social (socio-economic) system” and the “classical industrial economic system” have certainly become even greater. Simultaneously, however, so long as the totality provided by the “social (socio-economic) system” in a farming society remains in society and people, the soundness of the “classical industrial economic system” can be maintained and developed. In the late period (the period of c-d in Figure 1) of the “classical industrial economic system”, the organization revolution took place and organizations have become large, and the economy of scale and scientific management method started to be pursued. As a result, productivity rapidly increased, and an economic society started to move towards a high level mass consumption society. At this stage, movement began to “control” and “operate” the economy and a society as a whole of a society, coupled with the development of telecommunication equipment. The tendency of a society itself taking a “radical take-off” from the original social and cultural foundation becomes stronger, and that will increase risk which will be directly linked to the crisis of the being of human beings itself. (This is deeply related to another feature of the twentieth century, which is called the “century of wars”.) Despite that, the totality of the “social (socio-economic) system” which remained narrowly managed to enable the soundness of the “classical industrial economic system” in this period. However, the original natural totality of social economy has become even more lost, and has started to show more strongly the characteristics of “economic-social system” where the economy, which is partial system, decides a society, which is a total system, that is to say, “economic civilization” (See Figure 2).

In the late period (the period of d-e in Figure 1) of the “organizational society” when an “affluent society” was realized in advanced countries as a result of an “industrial economic system” and an “organizational

economic system”, a “radical take-off” from the social and cultural foundation in an economic society rapidly progressed, coupled with the information revolution. In the “economic-social system which radically took off”, the stock of cultural and historical elements comprising the social and cultural foundation which provided values and standards that give direction to people and economic society has declined, and its direct effect on the economic society has become extremely weak. The ideology of neutrality was established with respect to what scientific technologies, media and corporations provided, and they were freely selected (independent judgment – in reality, judgment “controlled” by the media and advertisement) by people without substantial judgmental ability. As a result, the society has started to assume serious aspects of a “society of desire” (“a system of desire”) where what is possible is all realized and what is desired by people is all approved.

As a result, today’s economic society has become a society (“sick society”) that can be narrowly managed by programming (continuing to have an empty rotation) for people to feel dissatisfied with obtaining anything, and we see morbid phenomena everywhere. However, people have reached a stage where they have no subjective symptoms about that. The countries with such most serious morbid phenomena are the USA and Japan, and especially Japan. The reason is that the USA essentially started as a country with a “radically taken-off economic society” 230 years ago in the period of the Industrial Revolution and Japan is a country which realized the “most radically taken-off economic

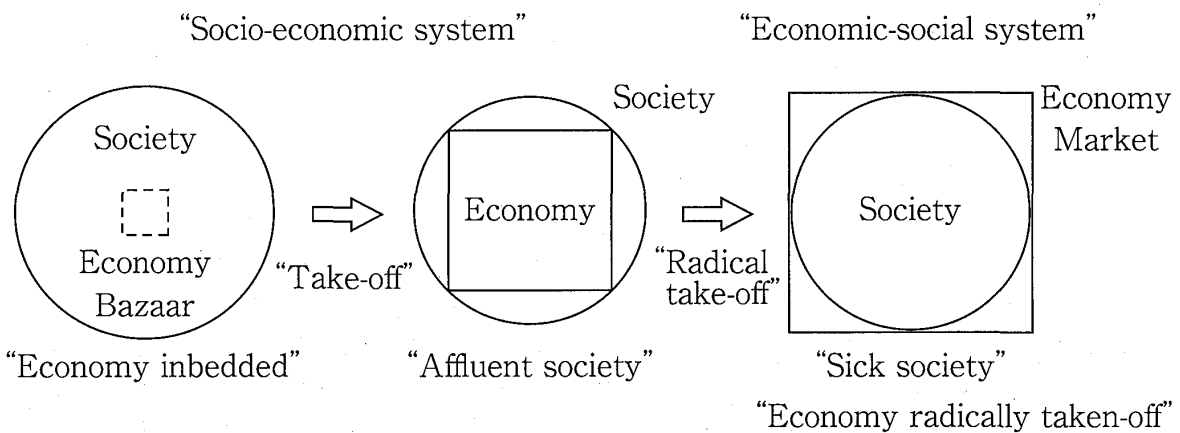


Figure 2 "Socio-economic system" and "Economic-social system"

society” from the social and cultural foundation and the natural and historical foundation in the history of 130 years after the Meiji Restoration. In that sense, we consider that the time has come that Japan should reconsider its history of modernization which lasted for about 130 years since the Meiji Restoration and the USA should reconsider its history of the 230 years since the construction of the country.

IV. Change of institutions

As we discussed above, the history of modern society was a process where scientific technologies were applied and expanded to all domains of industry and society. It was also a process of “change of institutions” which prepared the social and economic environment to operate scientific technologies and economic-social principles in modern times. In this study, let’s consider the process of modernization from the viewpoints of “institutionalization”, “formalization” and “systematization”.

1. Three stages of institutionalization

When one examines the history of modern times, there are basically three stages in “institutionalization”. Stage 1 is the “first institutionalization” accompanied by the conversion from the “social (socio-economic) system” to the “classical industrial economic system” and Stage 2 is the “second institutionalization (formalization)” accompanied by the conversion from the “classical industrial economic system” to the “organizational economic system” and the last stage is the “third institutionalization (systematization)” accompanied by the conversion from the “organizational economic system” to the “information economic system” (See Figure 3). The UK and France which realized an industrial revolution in early times were able to proceed with the conversion from farming society to industrial society, organizational society and information society with relatively sufficient time, but countries and regions which were later starters had to carry out a conversion with major conflict and confusion. The reason is that scientific technologies themselves which were the driving force that propelled the change in socio-economic system in modern times had always a characteristic (fundamental problem) of deviating from the social and cultural

foundation. However, the “first institutionalization”, “formalization (the second institutionalization)” and “systematization” (the third institutionalization) which progressed without understanding and being aware of such essential points and problems of scientific technologies had a major effect on the social economy more than the scientific technologies themselves.

When the “first institutionalization” which was the conversion from farming society to industrial society took place from the latter half of the eighteenth century to the first half of the nineteenth century in the UK and France where the social and cultural environment to create that change had been prepared, it was appropriate to say that its feature was the “economic take-off” from the social and cultural foundation, but the conversion from a traditional society to an industrial society in the countries and regions, which were late starters, was overlapped with the “formalization” which was the conversion from an industrial society to an organizational society. So the situation is slightly different. In Japan, which represents that case, the Meiji Restoration was not only an “economic take-off” (the first institutionalization), but had an aspect of a “radical take-off from society” (“formalization”). The revolution at that time had such a major issue, but it means that people had great expectations that the centralized government would take such a major role in organization under the national system.

When we look back at our modern history from such a viewpoint, it can be considered that the history of Japan for about 130 years in its modernization had an aspect that it was a purely experimental place for modern Western European civilization, and was full of bitterness. The reason is that the Meiji Revolution had two aspects, one of which was the “first institutionalization” and the other of which was the “formalization”, and the reform after the War was the “formalization” made in a form unsuitable for the actual situation of Japan at that time, and under the influence centering on the USA in occupation after the lost War. Further, the reform after the War tended to have a nuance of idealism of a trial of the creation of democratic economic society under the “modern natural law”. In that sense, it also had an aspect of “systematization”.

In the reform in the Meiji Restoration, institutional reforms took place rapidly one by one to change the conventional system and prepare a system suitable for a modern country, such as the order of separation

of the God in Shinto and the Buddha in Buddhism(A.D.1868), the return of the land and people from the feudal lords to the Emperor (1869), the abolition of clans and establishment of prefectures (1871), the promulgation of the educational system and the adoption of the solar calendar (1872), the order of conscription and the reform of land tax (1873), followed by the establishment of the Bank of Japan (1882) and the promulgation of the Imperial Constitution of Japan (1889). The series of these reforms cannot be described to be simply an “economic take-off” from the historical and cultural foundation of a “traditional society” that existed before the reforms to the “classical industrial economic system”. In other words, such an “institutionalization” (formalization) in Japan was the rapid preparation of necessary systems for modernization, and simultaneously it was to informalize the traditional and cultural conventions and customs which had substantially supported people’ lifestyles until then, and lower the status of them to the level where it is impossible to evaluate.¹²⁾

For example, the adoption of the solar calendar and the change in the time recording method from the unfixed time method to the fixed time method in the 5th year of Meiji (1872) meant that the natural calendar (the lunar and solar calendar)which continued to be used to tell the time and form the rhythms of people’s life during 1269 years from A.D. 604 was thrown away as a worn-out method.¹³⁾ In addition, the promulgation of the medical institutionalization in the 7th year of Meiji (1874) had a great negative effect on the development of the Chinese medicines after that by the formal adoption of western medical science, although as at the time 5,247 western style medical doctors were practicing compared to 23,015 Chinese style medical doctors in practice.

The “first institutionalization” and the “formalization” for the modernization after the Meiji Restoration informalized the traditional elements rooted in people’s daily lives, and had to formalize modern elements which did not necessarily directly connect to people’s daily lives, which was a policy contradictory to the “institutionalization” under normal condition. This produced features peculiar to the society and economy of Japan such as the separation of the true underlying motive and the principle or dual economic structure. However, this was not necessarily a phenomenon seen only in Japan, but there is an aspect

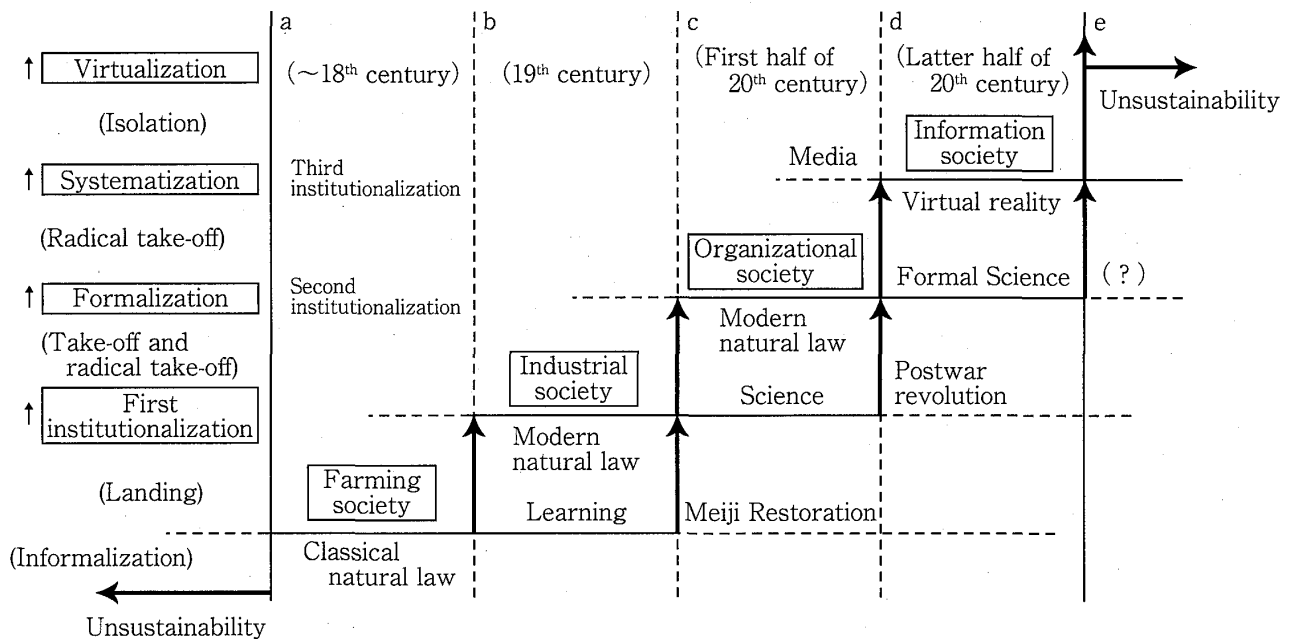


Figure 3 Change in social system and change of institutions

that we received the contradiction peculiar to the modern Western European civilization. Accordingly, the “institutionalization” for modernization produced a major conflict and clash anywhere in society with a long history in particular. However, the “institutionalization” at this stage was made by leaders with a fundamentally affluent culture (philosophy, religion and ethics) cultured under the “social (socio-economic) system”, and could therefore manage to maintain the totality of the social economy. In this way, the process of the “change of institutions” which took place in the order of the “first institutionalization”, “formalization” and “systematization” was the process where the character of the original “institutionalization” was being lost.

2. Formalization and systematization

The “formalization” (the second institutionalization) was an “institutionalization” for the conversion from the “classical industrial economic system” to the “organizational industrial economic system”. In the “formalization”, there is an overlapping period between the “classical industrial economic system” and the “organizational economic system”. The characteristics of the “formalization” therefore greatly vary depending on when the transition was made. Western European

countries appear to have had time to consider the transition and various issues accompanied by that with relatively sufficient time. As we mentioned above, here the “institutionalization” in Japan was complicated, having a double meaning.

Japan, which was under USA -led occupation after the War and which has consistently been dependent on the USA since the independence, became in a way a purely experimental place for modern Western European civilization. In the postwar reform in Japan, new “institutionalization” (“formalization”) was made in place of what existed before the war in all domains, beginning with the dissolution of the zaibatsu (the industrial conglomerate), agricultural reform (the first round) and the proclamation of the Trade Union Law in 1945, the promulgation of the Constitution of Japan in 1946, the Fundamentals of Education Law and the Antimonopoly Law in 1947, and until the end of the occupation in 1952. This “institutionalization” was made following the sense of value of the “modern natural law” idealized by the USA which was then realizing an “affluent society” substantially by the “classical industrial economic system” and the “organizational industrial economic system”, and that was supported by two things, one of which was the democratic system and the other of which was the market economic system on the basis of the assumption of free selection by rational individuals. Accordingly, the postwar “institutionalization” had a lot of characteristics of the “systematization”, because of its tendency towards idealism. Japan has progressed under the framework of this institutionalization throughout since that, and realized an “affluent society” by achieving high economic growth in that process. However, simultaneously the “institutionalization” with a tendency towards idealism which largely deviated from people’s naive feelings has produced complicated problems in various aspects.

The economic society of Japan, which is called an “empty paradise”¹⁴⁾ or a “lost country”¹⁵⁾ at present, has no true vigor, and many morbid phenomena are evident. On the other hand, in the USA in the last twenty years of the twentieth century, an unprecedented commercialism had expanded and increased people’s desire, which ended in the “economic-social system” (economic civilization) that could be maintained only by making people overconsume by creating dissatisfaction and misfortunes by advertisement.¹⁶⁾ These phenomena

are seen not only in Japan and the USA, but have now spread worldwide. However, it is clear that they are particularly conspicuous in the USA and Japan. They are caused by the “change of institutions” accompanied by the progress of the three time “institutionalization” and the characteristics of the modern Western European civilization and especially the modern scientific technologies based on it.

What is the difference among the “first institutionalization”, “formalization” and “systematization”?¹⁷⁾ The conversions from farming society to industrial society, from the industrial society to the organizational society, and from the organizational society to the informational society are related to the “first industrialization”, the formalization (the second institutionalization), and the systematization (the third institutionalization) respectively. It appears that there is no major difference among the “first institutionalization”, “formalization” and “systematization”, but the features of scientific technologies themselves which comprise the core of the modern Western European civilization are important here.

The “first institutionalization” is the “institutionalization” to convert a farming society to an industrial society, meaning an “economic take-off” of farming society from the social and cultural foundation. However, the social and cultural foundation itself still remains. On the other hand, the “formalization” is an “institutionalization” (formalization) at a stage where the sense of value of the “modern natural law” has penetrated in line with the development of the “classical industrial economic system”, and the double “institutionalization” occurred and the social and cultural foundation has become unstable and could collapse. Furthermore, the “systematization” means an “institutionalization” with three meanings, and the world of virtual reality has become large and the value standards have diluted. As a result, a “social take-off” takes place from the social and cultural foundation of social economy itself, and there is a high risk that all systems in an economic society are completely stripped of their contents and could float. Japan has fallen in such a state at present.

In such a state, the original role of an “institution” which should be supported by people’s natural feelings which come from their inside and intentions cannot function at all. As a result, it will become even more necessary to conclude by relating to the regulations and orders from the outside. However, even if it is called an “institution”, it is a

“system” in effect. It can be said that “change of institutions” will therefore occur. In fact, what is called an “institution” today never promotes voluntary cooperation of people that is rooted in the social and cultural foundation of such society, but has become a “system” based on inorganic and external regulations and coercion.

The problem of “change of institutions” such as the “first institutionalization”, “formalization” and “systematization” directly applies to social science which should take the trend of the actual economic society. Today’s learning (it is science in reality) is not to take the actual problems but in reverse they are taken by the actuality. Learning does not take the times but the times have taken learning. In other words, people are swayed by the times. The conventional learning was based on the totality upon the social, cultural and historical foundation, but as Figure 3 shows, as a result of learning itself having experienced the “institutionalization” three times without awareness, riding on the waves of the shift in line with the shift of social system from farming society to industrial society, organizational society and information society, learning (science) itself is completely severed from the social, cultural and historical foundation today.¹⁸⁾ Accordingly, the feature of today’s stream of learning is that no common foundation of thoughts exists and it has become theories independent from thinking persons, that is, a trial to acquire objectivity (false-objectivity) not to know the truth but to feel satisfied. However, such value relativism is not useful for any practical purposes, but it cannot be helped that the theories continue to follow the actuality all the time or fall into an empty self-evolution (wordplay or an empty theory). Positive studies are emphasized today, but barely noticed major misunderstandings and illusions are made in them. Theories and positive studies are normally made for the purpose of proving corroborative evidence (clarification) of the actuality, but positive studies today are carried out to have corroborative evidence of the theories and models. The range of these theories and models are not essentially questioned, and probably people do not have such questions. However, theories and models are merely the means to understand the being of the actuality and nothing else. The present situation where they are used for self justification must be fundamentally corrected.

V. Sustainable socio-economic system

The society which showed rapid economic growth by a “take-off” from “farming society” to an “classical industrial economic system” was converted to an “economic social system” through a process of “institutionalization”. However, that was a system where the economy regulated society, and was never a sound (total) “socio-economic system”. Then, what is an original sound “socio-economic system”? what will become important elements in that system?

1. Crisis of total system (Forgetfulness of being)¹⁹⁾

All things in this world including human beings, society and nature exist as a total system, irrespective of whether human beings are aware of them. Nature exists as a total system while each of the physical system, energy system and ecosystem relates to each other, and human beings and society exist as a whole in it through history, climate and culture.²⁰⁾ The “socio-economic system” exists as a total system, supported by the absolute world, which has gratuitous and unilateral aspects such as climate, history and culture which correspond to the informal part from the viewpoint of a formal system (See Figure 4). In addition, human beings are born into a socio-economic system, which is such total system, and are of the total being (total system) which forms oneself by touching climate, history and culture in the direct and total involvement between human beings (See Figure 5). The history of mankind is the history where the being of nature, society and human beings are accepted and culture and civilization is enhanced as a total system.

The modern history after the industrial revolution has always progressed in the direction of negating this totality. The reason is that scientific technologies existed in its base from the organizational revolution to the information revolution, beginning with the industrial revolution. We are usually barely aware that the greatest feature of scientific technologies is “severance” (destruction) from the actuality and “operation” and here is the original risk of scientific technologies. It is the structure where the relationship between other domains and the total (actual being) including oneself is not considered, because they are severed, but on the contrary because of that, end-rationality can be

pursued to the utmost and domains that can be operated can be expanded, which enabled rapid growth. However, the “severance” (= “take-off” and “radical take-off”) from the actuality caused by the development of scientific technologies took place at three stages, as the “first institutionalization” in the industrial revolution, the “formalization” in the organizational revolution, and the “systematization” in the information revolution respectively. Modern human beings have been severed three times from actual being, which means that the degree of “operation” has been increased. Most of the goods and information produced and consumed in a large amount in modern society are produced and consumed as a result of the “severance” which took place three times and the “operation” on the basis of them.

The fact that the economy and society are severed (take-off and radical take-off) from the cultural and historical foundation means that the informal system (the world of “commonality” and “nature”) which should support as its basis the modern formal system, which are the political system (democratic system) and economic system (market system), is not reasonably evaluated, and it rather becomes the subject of “destruction” (See Figure 4). Modern individuals on the premise of the freedom as rational individuals will therefore “destroy” human elements which are formed and maintained from the inside of oneself (self), which means that their being is self-contradictory (See Figure 5). Accordingly, the history of modern and present ages is certainly a history of losing and destroying the totality (history of “forgetfulness of being”) when seen not from the usual viewpoint of industrialization and the economic development but from the viewpoint of a total system. Nevertheless, in the times of industrial society when elements of traditional farming society remained, the totality (soundness) of society was narrowly maintained. In addition, it was the power which supported the vigor of the industrial society and the organizational society.

However, the soundness of society which supported the vigor of the society greatly receded in the high growth period from the end of the War to around 1970. As a result, in the present information society which came on in place of the organizational society, the stock of social and cultural elements which supports economic society from the foundation is small. The order (false-order) in formal system, which has now become dominant, is not supported by people’s initiative but forms

a society where the order is narrowly achieved through the intended "operation" (control) by end-rational "system".

Today, partial rationality (end-rationality) of scientific technologies is connected to the individualistic liberalism, which is the principle of the modern economic society, and is pursued almost limitlessly without being checked by the total rationality (value-rationality). What comes on inevitably there is the "sick society" seen in society in today's Japan and USA. The reason is that where science (technology) pursues partial rationality (end-rationality) within the scope of the world (visible world) that it can understand one-sidedly, multiple aspects (invisible world) of the living reality, which do not agree with specified ends which happened to be selected, is considered useless, thought light of and neglected, or destroyed. On the other hand, the "operation" for the purpose of pursuing the end and the "systematization" which enables that will progress in the understood domains.

In this way, when a formal system is severed from a total system in the socio-economic system and end-rationality is exhaustively pursued, and unless value-rationality of the result (end) is not questioned or people do not have the ability to question it, it means that people do not take the result, but are taken by the result, and the system is caught by the result to the end. It is true that the present society is formally established on the premise of free contracts and exchange by rational individuals, but the actual situation today is that rationalization in society and technologies to operate society are commonly seen and that it is therefore merely a congregation of people who are captured by end-rationality and are not free. In short, the totality of the living reality which should support those people themselves is destroyed endlessly by people's mere desires and feelings of hatred, and the crisis (forgetfulness) of the totality of all the being reaches the ultimate stage. Most of the problems which arise today are made by "overdoing" and "excess" created by limitless pursuit of such partial rationality (end-rationality).

However, the limitless pursuit of partial rationality is made on the premise of the soundness of the total system. Activities of mankind have already surpassed the limits of supportability of the earth at present. It is therefore impossible to continue to adopt the logic of partial rationality where solutions are pursued towards the outside as before. The reason is that, to begin with, in the logic of partial rationality, only

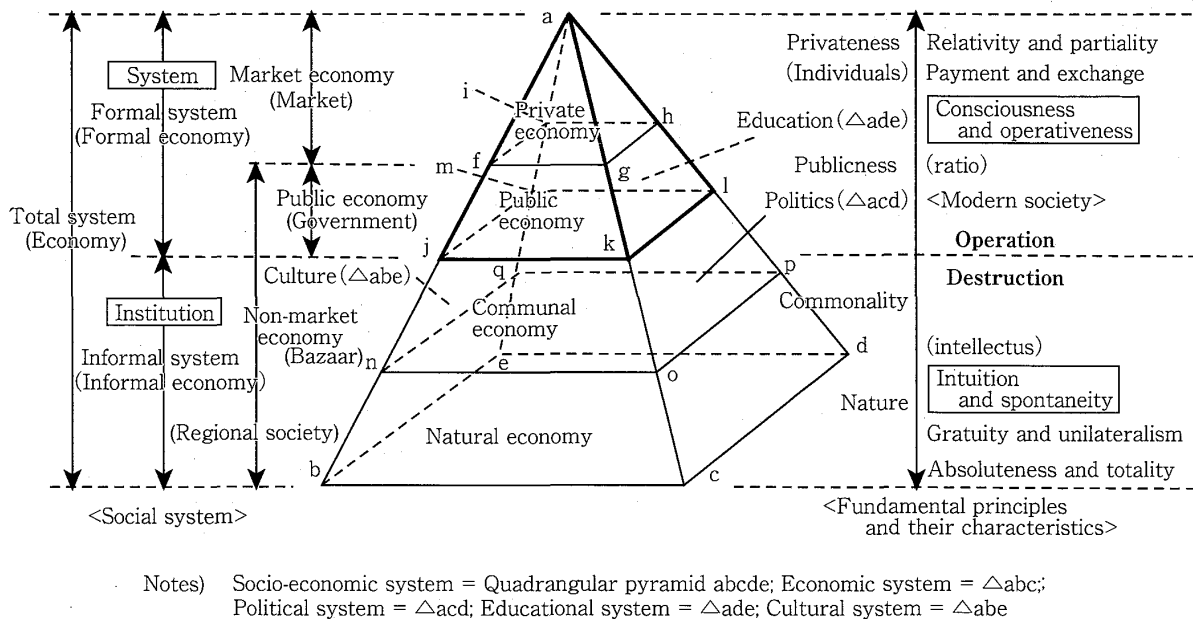


Figure 4 Structure of socio-economic system

the aspect of the being of the actuality which happened to agree with the end of the partial rationality is evaluated, and the other part is neglected or destroyed, and its totality (the whole) is not utilized. In this way, the various elements belonging to the social and cultural foundation which supported society and human beings from its base have been forgotten, neglected and destroyed, irrespective of whether or not people were aware of it. At present, people are barely interested in the contents and the maintenance of the stock of various social and cultural elements, and the stock level has now rapidly declined. It is the fundamental cause which makes the present economic society and people very much unsettled in a number of domains.

2. Reception and resuscitation of total system (belonging to being).

The traditional society was a farming society where the “classical natural law” was used as its value standards, and this society was originally a “social (socio-economic) system” where people operated farming under the natural environment and the economy was inbedded in society (See Figure 2). However, today’s social system has already

been severed from the social, cultural and historical foundation into three strata by three types of institutionalizations, the “first institutionalization”, “formalization” and “systematization”.²¹⁾ The society after the late period of industrial society became an “economic-social system” where the economy, which was part, regulated society, which was total. This is clearly perverted. The fundamental cause of this perversion is that the methodology of scientific technologies, which comprise the core of the industrial revolution in the latter half of the eighteenth century and the modern Western European civilization which started from the civil revolution, and the fundamental principle (individualistic liberalism) of civil society are based on “rationalism”. The reason is that in the logic of thinking based on “rationalism”, no actual living total system can be accepted in principle. The being of the actuality always changes as the total system, whatever it is. When such actuality is thought in the way of rationalism, it is inevitable to be isolated from the actuality which it is the total system.

Accordingly, today’s social system which comprises the methodology of scientific technologies and fundamental principles of civil society has become an “economic-social system radically taken-off” from the original social, cultural and historical foundation. The important thing as at the present time at such a stage is to draw back (“landing” and “radical landing” the “economic-social system” which was severed and operated two and three times from the actuality as total system to the social, cultural and historical foundation of the original “socio-economic society”.²²⁾ The basic matter is not pursuing partial rationality (end-rationality) in the “economic-social system”, but regaining total rationality (value rationality) in the original “socio-economic system” (See Figure 2).

Nevertheless, when the “spirit of method” of scientific technologies is widely penetrated into society, and is connected to the democratic system and market system²³⁾ based on individualistic liberalism, the pursuit of open wants and desire of individuals connected to (caught by) scientific technologies will come to be approved. There is nothing which stops this movement on the premise of various institutions and systems of the present economic society.²⁴⁾ If there is anything that stops it, or if its movement stops, it will be when its negative aspect becomes clear to everybody as a result of the physical and spiritual

limits of mankind itself, the limits of the order and safety of society, or the physical limits of the earth largely exceeding such limits. The present civilization regulated by scientific technologies is the civilization which pursues expansion (growth) forever until a negative aspect crucial to mankind, society or the earth comes on, and so long as a majority of people do not accept it or until they accept it. In the end, its fundamental cause is that rationality of modern scientific technologies is only a partial rationality, and not the rationality considering the total system. In other words, the rationality (end-rationality) in the present society regulated by scientific technologies has a nature which is allowed so long as people, society and the earth maintain soundness as a total system.

K.E. Boulding understood the heart of this problem at a relatively early stage.²⁵⁾ He asserted that the present mankind is always at the point of conversion from the age where frontiers exist (the open system age) to the age where frontiers do not exist (the age when the whole earth becomes a closed system), and warns that our age is at a major turning point by calling the economy in the age where frontiers exist the “cowboy economy” and the economy in the age where frontiers do not exist the “economy of spaceship earth”.²⁶⁾ Mankind has so far lived on the premise of the “cowboy economy” (open system), and is now in the age of the “economy of spaceship earth” (closed system) for the first time in its history. Naturally, the “cowboy economy” and the “economy of spaceship earth” will require different economic principles. In the “cowboy economy” in the past, the degree of the success in the economy is measured by the amount (GNP or GDP) of the throughput from production elements, and growth is pursued on the belief that the greater the consumption and production, the better (growth economy). On the other hand, in the “economy of spaceship earth”, the contents of the stock of the total capital of the whole society including the body and mind of human beings and the maintenance of that stock are the most important matters, and the intrinsic yardstick to measure the degree of the success of the economy is to maintain the total given stock by less production and consumption (steady-state economy). That means that all the being is basically received as a total system, which means that its concept is totally opposite to the conventional concept.²⁷⁾

In any case, to draw back (“landing” and “radical landing”) the

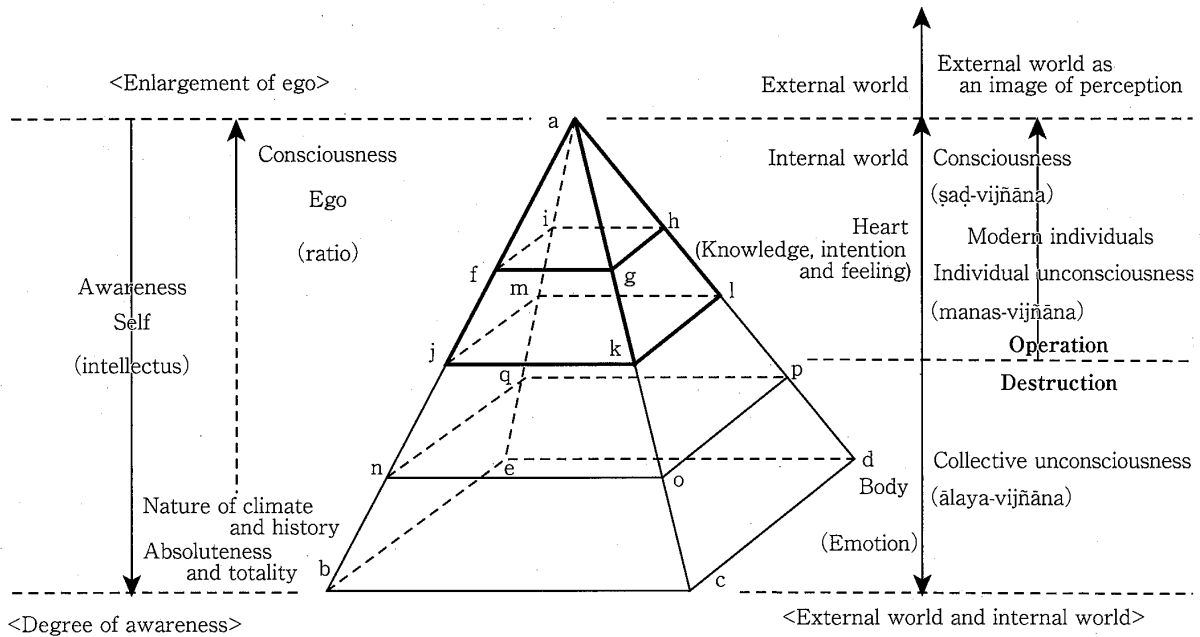


Figure 5 Basic structure of the being of human beings (self)

present “economic-social system radically taken-off” to the original “socio-economic system”, people must find various elements of the original social, cultural and historical foundation again, and carry out development and creation in a form appropriate in the present time. In other words, it is necessary to reproduce regional culture which had been forgotten, neglected and destroyed and to develop human resources for that purpose from the viewpoint of a total system. Furthermore, people should not pursue the mere results on the basis of partial rationality (end-rationality) in developing human resources, but communicate and develop the “value of service” produced only when people are involved in total with other people (in other words, by not only pursuing the result but being involved in the process as well).

VI. Conclusion

In the twentieth century called the “century of economic growth”, mankind achieved an unprecedented physical prosperity. However, at the end of that twentieth century, China and India, which had been left behind despite them being countries with a large population, started to

show economic growth. The Chinese economy is already overheated. Amid the world having a number of problems at present such as global environmental issues, resource and energy issues, problems such as whether or not we can pursue growth as before, whether such pursuit is allowed, or whether or not we have already entered the age where completely different conception is required, we have considered with reference to the features of growth and discussions concerning the limits by making "industrialization", "institutionalization" and "total system" the axis. We summarize below what we discussed in this paper and what was obtained as a result as briefly as possible, although they have already been mentioned before in this paper.

Firstly, concerning the record of growth, it is clear that mankind has achieved rapid growth starting from the Western European countries in the last 100 to 200 years. Especially the latter half of the twentieth century saw remarkable growth nearly worldwide. Today we have entered the global growth age. However, simultaneously with the industrial process was a process of the expansion of the gap between the affluence and the poverty.

Secondly, we cannot consider that such growth can continue in this state, if we consider in the usual way. However, in fact, *The Limits to Growth* in the early 1970s had already pointed out that this could not be continue only for 50 years or so as of that time. After that, no drastic measures were adopted until today, and the activities of mankind have already "exceeded" the capacity of the earth by approximately 20%.

Thirdly, concerning the cause and effect of rapid growth, the power of scientific technologies regulated the bases of industrial revolution, organizational revolution and information revolution became a driving force of growth, and farming society has been converted to industrial society, organizational society and information society. Then, "classical industrial economic system" and "organizational economic system" achieved an "affluent society". However, the conversion to respective society brought about "severance" ("economic take-off" and "radical social take-off") from the social and cultural foundation of such society. That process was a process of conversion from the "social (socio-economic) system" where the economy is inbedded in society to an "economic-social system" where the economy regulates society". It was the advent of the "the age of economic civilization".

Fourthly, concerning the essence of modern science and scientific technologies, the essence of modern science is the “superiority of method” and the essence of scientific technologies is the “rule of the rack”, and either invites the “greatest risk” which is “forgetfulness of being” (crisis of total system). The concrete presence of such a crisis is “economic take-off” and “social radical take-off”. The transition from “social (socio-economic) system” to “classical industrial economic system” was a conversion to a fundamentally different social system in relation to total “being”.

Fifthly, the concrete process of conversion to industrial society, organizational society and information society which were brought about by industrial revolution, organizational revolution and information revolution was the process of “change of institutions”, which is the “first institutionalization”, “formalization” and “systematization”. It meant “economic take-off” and “radical social take-off” from the social and cultural foundation, but it brought about instability and agitation of the social and cultural foundation itself of such society, and caused the “sick society” today. In particular, Japan, which was a late starter in this process and had a completely different cultural foundation, had major difficulties - forgetfulness, negligence and destruction of the cultural and historical foundation of traditional society – in its “institutionalization”, “formalization” and “systematization” accompanied by industrialization, organization and informalization.

Sixthly, all the being of people, society and nature always changes as a total system, irrespective of whether or not people are aware of it. However, the modern history was a history where the “first institutionalization”, “formalization” and “systematization” were severed three times from the social, cultural and historical foundation after the industrial revolution and the totality had been consistently reduced and lost. In such circumstances, the informal system which supports the formal system had been forgotten, neglected and destroyed. All systems in the present information society have been ruined. Formal system today narrowly manages to be maintained by people’s intended “operation” (control) by a system which is not spontaneous but end-rational. Furthermore, the “spirit of method” of scientific technologies whose feature is “take-off” and “operation” has produced a “sick society” by linking to “individualistic liberalism” which is the principle of economic

society in modern times.

Seventhly, at present, when the crisis of totality of all the being is at the ultimate stage, what is necessary to resuscitate totality is to draw back (“landing” and “radical landing”) the perverted “economic-social system” to the social, cultural and historical foundation of the original “social-economic system”. In so doing, the actuality should be submissively accepted as the total system, and not partial rationality (end-rationality) of science but total rationality (value rationality) of learning should be regained.

Lastly, and eighthly, mankind is in the conversion period from an open system (“cowboy economy”) to a closed system (“economy of spaceship earth”), but the economic principle at the former stage is the exact opposite of that at the latter stage. In an open system, people seek the answer from the outside to the end, and pursue growth of flows without getting interested in the stock. It is a “growth economy” where that is highly evaluated. However, people have already arrived at a stage where it is difficult to pursue this economic principle. In a closed system, people get interested in the contents and maintenance of the stock, and evaluate what is as total and utilize it at its best. Accordingly, it does not mean growth but “steady-state economy”.

The above is the contents we have discussed in this paper. They may be largely different from usual common knowledge in our times. The present society is based on two systems (democracy and market economy) related to politics and economy created by modern Western European civilization. However, anything is restricted by the times. What was brought about by the present political and economic system based on free selection of rational individuals was certainly great. However, especially the countries and regions which have already realized its formality have now entered into the age where people have to make efforts to change the contents of the formality.

It is necessary to draw its concrete image, but for the time being we would like to keep it as a future issue including what has not been discussed in this paper.

Notes

- * This paper is a revised version of my paper(2005) "Economic Civilization and Change of Institutions: the Crisis of Total System" *The Economic Review of Kansai University*, Vol. 55, No.3, pp.37-63.
- 1) In relation to this, we think that it can be said that clearly the North-south problem was a more fundamental problem compared to the East-west problem, although both had been the two major problems of the twentieth century.
 - 2) Growth factors such as technological progress, capital accumulation, population increase used to be the bases of the observation of economic growth theories. However, in recent years software such as human capital and enterpriser spirits, and various institutions which are rules to decide frameworks of economic activities have been considered to be important growth conditions, and institutions which aim for growth and designs and construction of systems are discussed and implemented. Increase, stability and equality (economic growth, stability of economic change and equality of distribution) of national income had traditionally been mentioned as targets of economic policies. However, only economic growth appears to be pursued today. In this connection, please refer analysis of growth factors and economic growth theories to Ch.1 in [7] of the Bibliography and [28] of the Bibliography.
 - 3) See [14] of the Bibliography
 - 4) The greatest misunderstanding of *The Limits to Growth* is to understand it as that mankind will use up all the stocks of energy and natural resources of the earth and the earth will collapse. The actual result is that natural resources and energy after that have not dried up and no declines in industrial production, food production, population, etc. occurred. So it is often said that the prophecy of *The Limits to Growth* was wrong. Such misunderstanding of *The Limits to Growth* is still deep-rooted at the present time. However, what was asserted in *The Limits to Growth* was more delicate. In fact, in the worse scenario in *The Limits to Growth*, growth was to continue to 2015. Accordingly, it is impossible to say that its forecast was wrong. See pages xxxii to xxxiii in [16] of the Bibliography.
 - 5) There is a strong non-linear nature in the limits to a system. There is a risk that damage occurs for a short time and the system cannot be repaired, if the value exceeds a certain value (threshold). Accordingly, it is necessary to take a countermeasure when "excess" appears to take place. Where an "excess" has already taken place, the result will be either an intentional adjustment ("drawing back") or natural adjustment ("collapse"). However, an intentional adjustment can be chosen only where there is no problem in the system proper. When a problem occurs to the system proper, exceeding the threshold, the system must collapse.

- 6) See pages 221 to 227 in [16] of the Bibliography.
- 7) A number of debaters started to point out the limits to the earth & the natural environment and an “excess” of activities of mankind around 1980. For example, see [5], [11], [18], [19], etc. of the Bibliography. Although it is a little different context, [27] is also interesting as an opinion that we are in the conversion time.
- 8) We would like to mention in a little more detail on what has been clarified as a result of an analysis. 1) Firstly, even if strong technologies which will contribute to decontamination and improvement of the land yield, and soil erosion abatement and improvement in the efficiency rate of non-renewable resources are simultaneously introduced on a global basis, or if a target (norm) to stabilize (restraining growth) the population and industrial production is introduced all at once in 2002 on a global basis, a certain “collapse” cannot be escaped in any case. 2) Only if two measures, one of which is restraint of growth and the other of which is improvement of technologies, are taken at the same time, there is a possibility that the world will proceed to a sustainable road (in this scenario, the population will peak out at a little less than 8.0 billion, and that the desirable physical living standard can be maintained at that population to the end of this century). Accordingly, 3) the longer the implementation of a drastic measure is postponed, the fewer the remaining choices will become, and “collapse” will not be able to be escaped, etc.
See explanatory parts concerning respective simulation analyses of 10 scenarios in [16] of the Bibliography.
- 9) Originally *the Limits to Growth* was the result of a request by the Club of Rome asking to present a solution together with a relationship of major global scale problems (poverty, famine, environmental destruction, resource drying up, urban dilapidation, and unemployment). *The Limits to Growth* showed the end of physical growth as at a certain time in the twenty first century. The fundamental cause of the limit to that growth was growth of population and production capital (the economy) in geometric progression. The cause of the growth in geometric progression is not a problem by itself as a matter of fact, but it is only the result of the growth of population and production capital in geometric progression. Accordingly, it was the conclusion of *The Limits to Growth* that the clearest and the most effective intervention point to resolve various global scale problems and avoid global collapse is “growth” (growth of the population and economy), and that conclusion has still not been changed at present. In conclusion, economic growth and the increase in the population taken up in the preceding paragraph exist in the roots of various problems of the present society, and there will be no problem solution without resolving them. See page 160 in [17] of the Bibliography.
- 10) See note 18).

- 11) See [2], [12], and [6] of the Bibliography.
- 12) It can be understood that “institutionalization” for the establishment of “classical industrial economic system” and “formalization” for the establishment of “organizational economic system” took place simultaneously in this way.
- 13) See pages 36 and 37 in [10] of the Bibliography.
- 14) See [13] of the Bibliography.
- 15) See [23] of the Bibliography.
- 16) See [3] and [26] of the Bibliography.
- 17) As we have considered “institutionalization” in Japan, in fact “institutionalization,” “formalization” and “systematization” cannot always very clearly divided. However, for the purpose of understanding the characteristics of a socio-economic system and features of changes, it is essential to clarify the differences between these.
- 18) Social system theories on the basis of this context are not at all sound. See discussions of S. Tennies in [24] of the Bibliography. [8] and [9] of the Bibliography are also interesting in this context.
- 19) Of course, however people in this age consider in reality, all actual being is total system. Accordingly, the crisis of total system here means that although all the being is originally a total system, but is not understood (forgotten) as a total system at all in the dominant sense of the people in that age and that that brought about a major system problem and that has come to its limit. Accordingly, its resuscitation means that the critical state will be conquered by understanding (accepting) all the being as a total system.
- 20) See [21] and [25] of the Bibliography. In addition, [22] is interesting in the sense that it is asserted that agriculture is an industry of a fundamentally different nature (totality) from the manufacturing industry.
- 21) At present, the part being public has been scaled down by the information revolution, and the part being the principle of “private” (individuals) has expanded, “systematization” of society having further progressed, and the centre has shifted to a private economy where markets play important roles. However, there is a high risk that this stream will further accelerate a loss of totality.
- 22) In this respect, Western European society has a foundation where they should be landing (the Catholic world in “classic natural law”). However, in the case of the East Asian society including Japan, the foundation where they should be landing is not clear as it was a “radical take-off”, and they have a difficulty that it is necessary to rediscover, develop and create the foundation itself.
- 23) The basis of economic social system where the formal system is superior that was produced by modern Western European civilization is democratic systems and market economy systems on the premise of free selection by

rational individuals (individualistic liberalism). However, frankly it is a fiction. That does not mean that there is no meaning in it as it is a fiction. It had a full value in establishing the democratic political system and free market economic system. In other words, it has a value of its own in regions and countries where such democracy and market economy have not yet been realized, as an ideology (fiction) to realize them. However, once these systems are actualized, the understanding the social system on the premise of that fiction will raise problems. Accordingly, this means that the time has come today that individualism and liberalism should be reexamined.

- 24) In reality, people can see only the external form by rational actual observation, and cannot see the inside. In the world of individualistic liberalism, therefore, no new ethics can be born, and the standards must be external standards (conception of operation and control) such as scientific standards and formal standards. See [29], my own paper.
- 25) See "Economics of the coming spaceship earth" (pages 430 to 448) in [1] of the Bibliography.
- 26) K.E. Boulding asserts that mankind is not in the conventional "cowboy economy" but has just entered into the closed system age, which is the "economy of spaceship earth". We consider that it is right in a physical sense. However, we would like to consider that the "cowboy economy" is the "economic-social system" in modern times or at the present time, but that the "social (socio-economic) system" of farming society before industrial revolution was essentially a closed system from the view point of the theory of socio-economic system.
- 27) See [4], and [20] of the Bibliography.

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