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from the 17th to the 21st century**

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its changes due to western agronomy,
and revival**

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Japanese agronomy from the 17th to the 21st century

Origin of traditional agronomy, its changes due to western agronomy, and revival

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1. Edo Farming textbooks as the origin of Japanese agronomy

“Nogyo Zensho” (Complete Japanese Farming Textbook) regarded as the best Japanese farming textbook

Among farming textbooks in the Edo period, “Nogyo Zensho”, which was written by Yasusada Miyazaki and published in 1679, had the greatest influence on farmers. This textbook was written using “Nosei Zensyo” by Jyo Kokei in the Ming dynasty as a reference based on farming observed by Miyazaki in the Kinai region with Kyoto as its center and his own farming experience in Chikuzen as his hometown. Farming textbooks written thereafter often referred to “Nogyo Zensho” as “the best Japanese textbook”.

“Mawashi (rotation/circulation)” by “farming appropriate for each region”

After the publication of “Nogyo zensho”, using this textbook as a model, many farming textbooks appropriate for each region were written. For example, “Nojibenryaku” (1787) in the Kai region states, “this textbook was written based on my own experience using “Nogyo Zensho” as a reference.” The authors of these farming textbooks were naturally aware of regional differences in the ideal state of farming, using expressions such as “farming appropriate for each region” or “careful consideration of climates”.

The other characteristic of the view of farming observed in Edo farming textbooks was the idea of “rotation/circulation”. For example, “Yamamotoke hyakusho issai chikamichi ari” (1823) in the Yamato region attached importance to “crop rotation” and “rational labor arrangement and rotation”.

Explanation of the basic principles of agriculture based on the Chinese yin-yang theory

“Nogyo zensho” introduced the yin-yang theory. However, until the end of the 18th century, farming textbooks stated only the basis of farming represented by the above-mentioned terms “farming appropriate for each region” and “rotation/circulation” and did not propose any special theory. “Nokagyoji” (1793) and “Nogyoyowa” (1826) were the first to propose a theory that the balance between yin and yang is important, all creatures consist of males and females, and therefore, plants also consist of males and females.” This theory was often cited by farming textbooks written thereafter, and the yin-yang theory and the male-female theory were gradually accepted by farmers.

2. “Nature” in Edo farming textbooks

Edo farming textbooks in the Tokai region

During the 300-year period from the latter half of the 17th century to

the middle of the 19th century, there were 4 farming textbooks with good quality in the Tokai region: “Hyakusho denki” (1681-1683), “Nogyo kakunki” (1731), “Nogyo toki no shiori” (1785), and “Nokaroku” (1859).

“Hyakusho denki” (omitted) *“Nogyo kakunki”* (omitted)

“Nogyo toki no shiori” (omitted) *“Nokaroku”* (omitted)

Concerning the understanding and view of nature observed in these farming textbooks, “naturally” as an adverb was often used, and the growth of crops was regarded as similar to that of humans. Crops were considered to ripen by the grace of “the Spirit in the universe”.

Changes in the view of nature in the last days of the Tokugawa Shogunate

However, “Nokaroku” used “nature” as a noun instead of “naturally” as an adverb, which suggests the objectification of nature as external nature in this stage. “Nature” was used in contrast with “human power”. This indicates that farmers became aware of “human power” and were establishing an opposing relationship between “the power of nature” and “human power”.

Agriculture that imitates Chinese/Indian/western agriculture and differs from Japanese traditional agriculture (omitted)

Exchange between farmers and crops/nature

Agricultural theories in Japan that were different from the Chinese yin-yang theory were as follows.

Atsuyoshi Igarashi in the Ettyu region was also affected by the study of ancient Japanese thought and culture. He wrote “Kosakushiyoko” (1837), describing exchange of “feelings” and “Qi” between farmers and crops. Yoshitoki Nakamura (1776) in the Tugaru region also described exchange between farmers and lands as well as crops.

World of subject-object union in Edo farming textbooks

As was observed in farming textbooks in the Tokai region, the term

“naturally” was used to express the world of subject-object union where crops and nature have not yet separated from farmers. A sense of gratitude was added to this world, which was expressed as “the blessings of Heaven”. This was the origin of Japanese agronomy.

3. Changes in Japanese agronomy after the introduction of western agronomy in the former half of the Meiji period

Introduction of western agronomy and the establishment of the guidance system

After the Meiji Period, changes occurred in this stream of Japanese agronomy originating in Edo farming textbooks. For 2 years from 1871, the Meiji government dispatched inspection missions including Toshimichi Okubo and Hirobumi Ito to western countries to change “backward” Japanese agronomy to “advanced” western agronomy.

Seeds and saplings and farming implements were imported from western countries, and tests and trial production were performed. These seeds and saplings and farming implements were distributed to experienced farmers in various areas of Japan, and production was entrusted to them. From 1871, foreign technologists and agronomists were frequently invited, and government officials and farmers were sent to foreign countries to inspect agriculture or expositions.

In 1878, the College of Agriculture of Imperial University was established as an agricultural educational organization to foster agronomy specialists. Before long, agricultural experiment stations based on western agronomy were established mainly by the graduates of this college. In 1893, the first national agricultural experiment station was established in Nishigahara, Tokyo, and many stations were established one after another in various regions of Japan.

Re-evaluation of traditional agrarian systems

However, not only the above western agronomy was introduced, but also traditional agrarian systems were re-evaluated. Various farming textbooks in the Edo period were reprinted, and farming textbooks were collected by Kanshi Oda. In particular, in about 1880, experienced farmers actively gave instructions as visiting teachers in the nation, prefectures, and counties, and this period was called the “experienced farmer period”.

In the national agricultural symposium held in 1881, experienced farmers gathered from various regions of Japan and discussed 8 themes, of which “crop rotation methods customarily performed in each region” represents their awareness of “rotation/circulation” by “farming appropriate for each region” continuing from the Edo period.

Naozo Nakamura, one of the 3 greatest Meiji experienced farmers in Nara Prefecture, had been famous since the last days of the Tokugawa Shogunate for exchange of rice varieties. The base of Nakamura’s idea was gratitude for the “blessings of Heaven”. The idea of the “blessings of Heaven” observed in Edo farming textbooks was alive in experienced farmers.

Establishment of the Meiji agrarian system as an agrarian system in each region

Until about 1890, officials and people had worked hand in hand and groped for “improvement in agriculture” to establish new agrarian systems. There was an affinitive, not opposing, relationship between them.

The introduced foreign agriculture and theoretical thoughts of western agronomy markedly stimulated farmers and were gradually accepted as agricultural principles replacing the yin-yang theory. A series of techniques called the “Meiji agrarian system” including dry rice fields, cultivation using cattle and horses, redevelopment of arable land, high-yielding cultivars such as Shinriki, and heavy manuring using soybean meal was completed from the end of the 19th century to the beginning of the 20th century.

4. Western agronomy and Meiji farming textbooks

Enri Hayashi

Farmers' view of nature/agriculture changed after the acceptance of western agriculture. Enri Hayashi, an experienced farmer in Fukuoka Prefecture, wrote "Kannoshinsho" (1881). He understood nature based on the yin/yang theory. It is of note that he objectified nature and understood it as external nature as was observed in "Nokaroku" in the last days of the Tokugawa Shogunate.

Attention should be also paid to the idea of "farming appropriate for each region" and the equation of the growth of crops and that of humans, which were ideas remaining since the Edo period. Thus, Hayashi's view was an extension of the view of nature/agriculture in the Edo period.

Denjibei Funazu (omitted)

Bachelors of agriculture such as Tuneaki Sako (omitted)

Application of general theories to regions after "experiments"

In the speech made by Moriaki Shiki, a bachelor of agriculture, in 1889, the idea of "farming appropriate for each region" remained. He talked about the necessity for the evaluation of farming appropriate for each region by "experiments". However, bachelors of agriculture did not theoretically understand the rationality of farming methods while confirming experience in each region by experiments, but applied general theories taught in schools such as Komaba School of Agriculture to each region.

Experienced farmers in the Meiji period (omitted)

Laws of heaven-reason-theory-(experiment)-practice (omitted)

Fusion of experience and theories

However, in general, this period was that of the fusion of farmers' experience and theories by experiments. Gratitude for the "blessings of Heaven"

was absent in bachelors of agriculture. It may have been also difficult for farmers to say this gratitude during the period when theories were predominant.

Ancient Japanese natural agronomy (omitted)

5. Japanese agronomy as an underground stream in the latter half of the Meiji period and the Taisho period

Studies on individual crops/element technology in agricultural experiment stations

Japanese agronomy began to change after the introduction of western agronomy in the former half of the Meiji period and further changed in the latter half of the Meiji period and the Taisho period.

The attitude of bachelors of agriculture toward research changed. They aimed to make use of the results of theoretical studies on individual crops/element technology for agriculture in each region without giving consideration to crop “rotation” appropriate for each region as a system. Thus, the flow of Japanese agronomy originating in Edo farming textbooks became an underground stream. Farmers accepted anything useful. The relationship between theories and experience in each region was complementary rather than fusion.

“Blessings of Heaven” as an underground stream

Since the end of the 19th century, there have been no expressions such as the “blessings of Heaven” in written historical materials. Have blessings completely disappeared even from farmers’ mind? Tuneichi Miyamoto, who walked around agricultural mountains and fishing villages throughout Japan before and after the war, stated the following feelings of workers in these areas.

“Each life there suggested no influences of western studies or ideas, negligibly smells of Confucianism in the samurai class, and appeared to have

been formed based on thoughts that had existed earlier. What maintains order in their life was attaching importance to connections among villagers and among family members, without betraying invisible Gods.”

Here, “studies and ideas from western countries” are identical with theories in western agronomy introduced in the Meiji period. “Confucianism in the samurai class” represents the Chinese yin/yang theory introduced in the Edo period. “Connections among villagers and among family members” represent “rotation” observed in Edo farming textbooks. “Without betraying invisible Gods” indicates gratitude for the “blessings of Heaven” also observed in Edo farming textbooks.

Bachelors of agriculture may have paid no attention to the “blessings of Heaven” that can not be explained based on theories. Due to the spread of theories in the Taisho period, there may have been an atmosphere not allowing farmers to say or write about the “blessings of Heaven”. The “blessings of Heaven” were compelled to become an underground stream.

6. Re-discovery of Japanese agronomy in prewar colonial Korea

Life of Noboru Takahashi

Noboru Takahashi, the author of “Agricultural Art and farmers in the Korean Peninsula” (1988), was born in 1892 in Fukuoka Prefecture, worked in the Suwon head station as an industrial model station of the Governor General of Korea from 1919, and became the chief of the west Korean branch station in 1928 for research on farming. He passed away in July, 1946.

Research on planting methods

The main theme of Takahashi’s research was “planting methods for major agricultural products and the use of lands in Korea”. Based on field research, he reported that the planting method in the Korean Peninsula was much more

intensive than that in western countries.

Regard each province as 1 experiment area.

Takahashi's research attitude and methods are represented by the following words. "Regard each province as 1 experiment area. Therefore, there are 13 experiment areas in Korea (There were 13 provinces in Korea)." and "The results of experiment are out of touch with farmers. We should visit farmers and learn modestly."

Takahashi also extensively read Asian farming textbooks and old literature in Korea. He was aware that the worship of western countries is not necessary, but the observation of Asian agriculture in association with the historical development of Asia is important.

Re-discovery of Japanese agronomy by the Korean agricultural experiment group

There was a specific "Korean agricultural experiment group" who performed agricultural research in prewar colonial Korea, including Tohei Sawamura, Hideo Mori, Kaichi Arashi, Kenichi Hisama, and Tatsuo Yamada in addition to Noboru Takahashi. They gave their love to "agrarian systems and farmers in the Korean Peninsula" in colonial Korea without being disturbed by academism in Japan. They advanced their studies on the history of agrarian systems, attaching importance to present status surveys, planting methods, respect for the opinion of people who are doing the actual work, and the social/historical background.

Thus, they re-discovered the world of "rotation/circulation" "by farming appropriate for each region" observed in Edo farming textbooks. Japanese agronomy, which became an underground stream due to the influences of western agronomy in the latter half of the Meiji Period, appeared on the ground ironically in colonial Korea. However, gratitude for "the blessings of Heaven" still remained an underground stream.

7. Toward the revival of Japanese agronomy in the 21st century

Flowering of private agricultural methods

During the food shortage period in the 1940s and 1950s, private agricultural methods flowered. The representative methods were the Kannon agricultural method proposed by Mokichi Okada, microbe/enzyme agricultural method by Kakuya Shimamoto, and the Yamagishism movement by Miyozo Yamagishi. They criticized the conventional view of agriculture attaching importance to theories and made efforts to induce the full development of the power of crops themselves without depending on fertilizers in contrast to quantitative agriculture depending on chemical nitrogenous/phosphoric/potash fertilizers.

However, under the Agricultural Basic Law from 1960, chemicalization, mechanization, and greenhouse cultivation were promoted, and private agricultural methods were labeled non-scientific uneconomical methods.

These private agricultural methods revived in the 1970s when the influences of pesticides on food safety became a problem. Organic farming and natural farming methods began to be proposed, and farmers such as Masanobu Fukuoka was active. They quoted Chinese philosophies such as the philosophy of Laozi and Zhuangzi and the yin/yang theory that were also quoted in Edo farming textbooks. Though they did not refer to Edo farming textbooks, the contents of their thoughts represent return to Edo farming textbooks.

Revival of “rotation” by “farming appropriate for each region”

Soichi Yamashita, a farmer and writer, talked about what farmers really think based on his agricultural experience for more than 50 years in Karatsu, Fukuoka Prefecture:

Excelling modernization does not mean returning to old days but means

bringing principles to the basis of “rotation” that does not cause deadlock using modern technology and experience. He proposed that farmers together with consumers in the region should aim at establishing a small circulatory society with agriculture as its axis that does not require growth. This is the world of Edo farming textbooks.

Revival of the “blessings of Heaven”

Yutaka Une, who was an agricultural extension advisor in Fukuoka Prefecture, has advocated the formation of a new view of nature/agriculture since the latter half of the 1990s. Conventionally, the value of agriculture has been evaluated in terms of productive efficiency and money. As a result, the world that can not be evaluated in terms of money has been ignored. This world has been traditionally expressed as “blessings” in farming by inhabitants in the Japanese archipelago. However, this world could not be objectified by agronomy.

He describes that “kami (Gods)” and “Spirit” dwell in all creatures, and exchange of Spirit between farmers and other creatures has activated Gods and Spirit dwelling in both of them. These are the contents of “blessings”, which are identical with the “blessings of Heaven” described in Edo farming textbooks.

Revival of Japanese agronomy characterized by subject-object union

Une cooperates with Yamashita in their activities mainly in Fukuoka. Their view is identical with “rotation” by “farming appropriate for each region” and the “blessings of Heaven” observed in Edo farming textbooks. What was lost under the influences of modern agronomy and universal science is reviving in the 21st century after 300 years in the hometown of Yasusada Miyazaki who wrote “Nogyo Zensho”, a paragon of Edo farming textbooks.

We are entering a new era of the revival of Japanese agronomy characterized by the combination of a science based on subject-object union and people’s wisdom.