The Mathematician K. Ogura and the "Greater East Asia War"

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Kinnosuke Ogura (1885–1962) was an excellent Japanese mathematician, struggling for the modernization and democratization of his home country. However, during the Sino-Japanese War, Ogura was trapped in the mobilization of the Tennoist aggression against China. This paper provides some evidence, seeks for an explanation, and draws some tentative conclusions.

1 Who Was K. Ogura?

Kinnosuke Ogura was born in 1885. He graduated from Tokyo College of Science (antecedent of Tokyo Science University) in 1905 where he lectured from 1910 to 1911. From 1911 to 1917, he was Assistant at the Department of Mathematics of the new Tohoku Imperial University. There in 1916 he received his Ph. D. with a thesis on *Trajectories in the conservative field of force*. From 1917 to 1937, he was employed as a Researcher at the Siomi Institute of Physical and Chemical Research (newly set up by Dr. Hantarō Nagaoka, antecedent of the Faculty of Science, Osaka Imperial University). During that period, he continued his research in France for two years, 1919–1922. In 1940, he was appointed Chief Director of Tokyo College of Science. In 1946, he was elected President of the Association of Democratic Scientists of Japan. He died in 1962. His Collected Works appeared in eight volumes in 1974 (see [Ogura 1–8, 1973–1975]).

2 Ogura's Struggle for the 'Scientific Spirit'

Ogura started his academic career studying applications of differential geometry to mathematical physics. He was the first mathematician to receive his Ph.D. degree as a graduate of a private college. In prewar Japan the gap between imperial universities and private colleges was so big that it caused journalistic gossip.

In Paris he studied European traditions of science and culture with some admiration. He attended the Congrès International des Mathématiciens 1920 at Stras-

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bourg, Alsace, read a paper, and talked with Hadamard, Fréchet, Eisenhart, D. E. Smith and others. At Collège de France he attended the seminar of Hadamard and the lectures by Langevin on the relativistic theory.

While in France he became convinced that Japan needed to popularize mathematics to working people and to raise the general public scientific level. Back in Japan, he gave lectures in many cities during 1922–1923. He declared in the Preface of his book on nomography [Ogura 1923, p. 9] that *Mathematics is a treasure not to be monopolized by mathematicians.* Also he published a book, *Fundamental Problems of Mathematics Education* [Ogura 1924], in which he emphasized the importance of spreading the scientific spirit. Ogura was the first Japanese to use the word "scientific spirit" as a translation of "ésprit scientifique" in an essay by Paul Appel.

His Japanese translation of *A History of Elementary Mathematics* by Cajori [Cajori 1917] triggered his own study of the history of mathematics. Under the influence of the book *Arts in Class Societies* by Russian marxist Plekhanov, Ogura wrote the articles *Arithmetic in class societies 1, 2* [Ogura 1929a], [Ogura 1929b] and *Mathematics in class societies* [Ogura 1930], which were published in the prestigious magazine, *Sisō*, in 1929, 1930.

These articles are pioneer works on the history of western mathematics from the view point of social, cultural, and economic history ("historical materialism"). They had a big influence on the Japanese world of thought.

Later he began studying Japanese and Chinese traditional mathematics. His article *Social nature of Chinese mathematics – Social situations in the Qin-Han era viewed from the 'Jiuzhang Suanshu'* [Ogura 1934], was highly appreciated by Chinese scholars: See the Chinese translation with comments by Yue Guang and the words of the editor Zhang Shenfu, Dagong-bao (Tianjin), July 12 and July 26, 1934. The editor Zhang Shenfu (Qinghua University) wrote:

> Ogura's work has opened a new phase of study of Chinese mathematics. Probably he is the first to observe social natures in Chinese mathematics. Moreover his work clarifies the closed relation between various sciences: mathematics and political economy. Studies in the same approach are expected to be done successively in China.

Ogura corresponded in a collaboration to exchange materials of old Japanese and Chinese mathematics with a Chinese scholar Li Yan (1892–1963), who is a pioneer of the modern study of the history of Chinese mathematics. (See the Preface of Li Yan, *History of Chinese Mathematics* (Zhong guo Suanxueshi), Shangwuyinshuguan, 1937, Shanghai.)

A recent review of the historical development of the history of mathematics in Japan (see [Sasaki 2002, p.292]) gives the following characterization:

> Ogura produced a number of influential books and papers, in particular on the history of mathematics and on mathematics education. Although not a strict Marxist historian, Ogura was certainly influenced by Marxist historiography in emphasizing the social aspects of the history of mathematics.

In prolongation of his criticism of the elitarian policy on mathematics education by the imperial Japanese government, he began to make efforts to guard against the upcoming racism and fascism in Europe and Japan. In order to criticize the Nazi philosophy of mathematics by Bieberbach [Bieberbach 1934], he wrote the article *Mathematics and racial characteristics* [Ogura 1935], published in *Tyūō Kōron*.

Ogura points out that Bieberbach's classification of mathematicians into Type S and Type J is very crude. Bieberbach assumes that the spirit is alienated from the real in mathematicians of Type S while the intuition and thinking are in harmonic unification for mathematicians of Type J. Bieberbach insists that French and Jewish are of Type S and German are of Type J. In such a way Bieberbach insists on the expulsion of French and Jewish mathematicians to purify German racial mathematics. K. Ogura acknowledged the existence of these two different types of mathematical mind, but criticized:

> Bieberbachs's racial characteristic concept is suprahistorical, rigidly psychologic. But the "racial" characteristics depend upon total history. The existence of mathematicians of Type S, so-called by Bieberbach, is not only French or Jewish. It is a common and universal fact in highly developed capitalist countries. It is a transparent deception that there do not exist representative mathematicians of German race of Type S. Now German capitalism is faced with a crisis and the despotism of the Nazis has appeared as a political form adopted by the bourgeoisie. On the other hand French and Jewish people are expelled, the working class is ordered to subordinate themselves, liberalism is suffocated. Bieberbach's troops stood up as ideologues of such a theory to protect the profits of the bourgeoisie. Especially their theory (?) serves not only for the expulsion of Jewish mathematicians but also for the rapid development and enlargement of industrial technology and military sciences, which is desired by the bourgeoisie. It is natural for them to better appreciate mathematics of Type J from the practical view points than mathematics of Type S, which is a formalism away from the real. Thus Naziism suffocates liberalism, and puts restrictions on the study of mathematics of Type S, which has been developed freely, by expelling French and Jewish mathematicians.

Thus Ogura warned readers about the possibility of appearance of "Bieber bachs of Japanese type".

This shows that Ogura opposed Nazi fascism and racism to protect the free development of mathematics at this time. In fact in the article *Task of scientists* [Ogura 1936], Ogura wrote:

> When the storm of fascism began to rage, European conscientious scientists gained selfawareness. Look! The science policy of Nazi Germany, which is the mother country of Jacobi who said "The purpose of science is the honour of the human mind", is now extolling the German spirit instead of the internationality of science, expelling many scientists, and strongly tinting science education with military colour.
>
> In Italy, natural science as a curriculum is illtreated in the name of respect for the classical spirit, with the curriculum of science being annihilated, and mathematics is taught in the spirit of classical education.

> This policy is to reduce people to stupidity and ignorance, isn't it? British and French conscientious scientists, who have a good long tradition of liberalism based on their deep scientific culture, are enemies of fascism instinctively. Now they have gained selfawareness. In France a group of scientists including colleagues of Poincaré, Hadamard, Langevin, Perrin and so on is fighting against this anticulturalism.
>
> The storm of fascism is not limited to foreign countries: in Japan anticulturalism is imminent, following a special Japanese path. In this situation scientists should devote themselves to the scientific spirit in their actions. The scientific spirit is the spirit which learns scientific heritages with due humility, examines them continually, discovers new and more detailed facts and creates more complete theories. It is quite the opposite of prejudice.
>
> Therefore the mind of a scientist should be kept in the condition of freedom. We scientists have freedom instinctively. We scientists have the courage to pursue the truth and to tell the truth. We scientists are essentially radicalists in this sense.

But Japan was entirely absorbed in the war against the Chinese people. In his *Reminiscences of a mathematician* [Ogura 1949], he wrote:

> Having arrived in Paris in 1920, I visited Professor Emile Borel, to whom I had been sending my papers and who cited my papers. Professor Borel told me that he stayed in Japan three days on the way to China. I asked his impression of Japan. His brief answer was "Japan is too militaristic". It was just after World War I and the Japanese people were enjoying "Taisyō Democracy". I had not imagined that a mathematician such as Professor Borel would point out the militarism of Japan in such a period of peace. I was so surprised at his keen insight.

3 What Was the "Greater East Asia War"?

"Greater East Asia War" is the name given by the Great Japan Empire Government in 1941 to the war which commenced in 1937 as the Sino-Japanese War (Marco Polo Bridge Incident). The war ended in 1945 just after atomic bombs were dropped on Hiroshima and Nagasaki. The prewar Japanese government called the war by this name in order to justify it as a war to ensure Japan's survival and selfdefence, to liberate Asia from Europe and the US, and to establish the "Greater East Asia Co-Prosperity Sphere".

But in fact this war cannot be justified. It was an imperialist war to invade Asian countries by mobilizing all Japanese people. As a result of the imperialist war and the brutality of Tennoist power, the people were forced to suffer great hardships with many people losing their lives and the country being devastated. The war of aggression caused the death of more than 20 million people in Asian countries. For example more than 200,000 Chinese civilians and war prisoners were killed by Japanese forces in Nanjing (Nanjing Massacre, December 13, 1937 – early in

January, 1938). Also in Singapore thousands of overseas Chinese were killed at the start of the Japanese occupation in 1942. Japan was the aggressor that used every means available to put Asian people under brutal oppression.

4 Ogura and the War

When the SinoJapanese War 1937–1945 began, 441 liberalists, leftists, anti-fascists in the academic and cultural area were arrested (Popular Front Incident, December 15, 1937 and February 1, 1938). The National Mobilization Law was set up in 1938 to mobilize all Japanese to the war. In 1940 Ogura engaged with the Imperial Rule Assistance Association ("Taisei Yokusankai"), which is an institutional embodiment of the new order intended to be a national organization for integrating and mobilizing people into a warlike state. This was a serious political mistake for him, but to us, it seems, his selfcriticism of this fact after the war (*Reminiscences* [Ogura 1949]) is insuffcient. Here is what really happened:

After some time, Ogura published an article *Rôle of scientists under the present emergent situation* [Ogura 1941]. He wrote:

> Now our Japan is faced with a very serious situation. The whole world is in a storm of historical changes. Here it is natural to advocate loudly the promotion of science through both the offcial and the private, in a time when we are pushing ahead with the realization of a high-degree state defence system.
>
> Stop discussions for the sake of discussion. The State needs the establishment of the following science policy immediately: Control strongly the study of science and technology for the purpose of the State! The special talents and knowledge of Japanese scientists should be sacrificed for the State, just like the soldiers sacrifice their blood for the State!
>
> Look at the emergent international situations. In the US, which is not yet at war, American mathematicians have organized a "War Preparedness Committee" in the last summer to start study of mathematics directly necessary for the war. Japan, however, which set a goal to establish a high-degree defence state and a self-suffcient economy of East Asia, has not yet established a war-time system of science. But five years have already passed since the beginning of the war. There are scientists who are not aware of this fact. It is so strange. In order to establish a high-degree defence state we must promote science and technology. For that there is no choice but to control science and technology.
>
> All wise scientists understand it. Under rational control by the State, scientists will do their best desperately, making up their mind to accomplish the highest task imposed by the State, with real delight. All scientists should pursue the highest task of the State and concentrate themselves to this.

The author cannot make the quotation without sorrow. An anti-fascist, dedicated democrat mathematician Ogura, even he could not resist and was trapped into the crazy spiritual mobilization of the Tennoist warlike power. How strong the mind control was!

After the war Ogura wrote in an essay *I am ashamed to be a scientist* [Ogura 1953]:

> I cannot bear talking about science and science education during the time when military fascism was raging. No. I should say briefly: Almost all of us surrendered to the pressure of the power; Of course, I was one of them.

5 Double-Edged Sword

In 1943 Ogura elaborated his bow for the Imperial War when he gave a lecture at a meeting of The National Science Association. He talked about École Polytechnique founded in the time of the French Revolution in Paris, which intended to cultivate good engineers for the increase of productive power and excellent offcers of artillery. He emphasized that the guiding principle of École Polytechnique is the synthesis of theory and application and the practice. His analysis is long but well done to explain the revolutionary character of the early École Polytechnique. This lecture was published as an article *School of science and technology in wartime – on early École Polytechnique* in the book *Mathematics in Wartime*, 1944, during the war, [Ogura 1944], see also Figure 1.

The beginning of the preface of this article is:

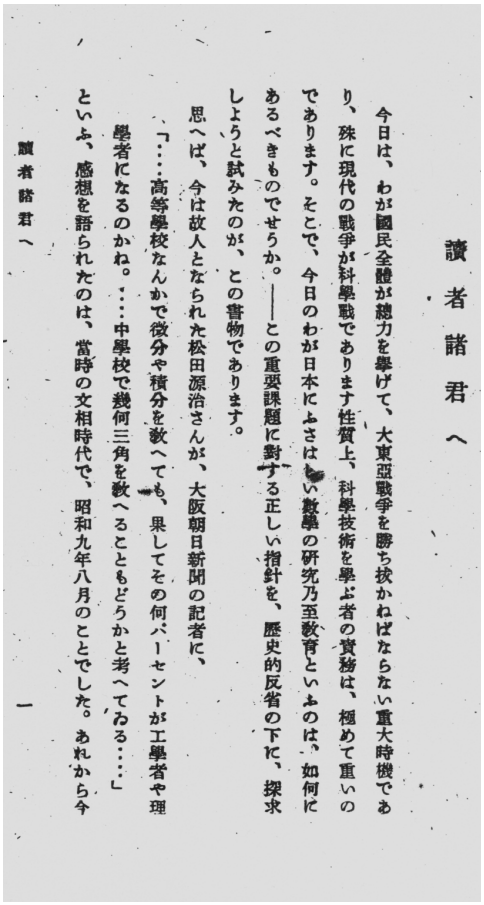
> Today our country needs a rapid advance of science and technology to win the Greater East Asia War. Today's war is a war of science and technology. Therefore the unification of science and technology under the political power and the innovation of science education, these important problems, are being discussed in every military, offcial and popular sector, and have been realized. But in the US, according to newspapers, a very clear and radical policy to make a thorough education of science and technology based on mathematics and physics is put in practice. Compared with the US our country is delayed much. I regret it.

This shows that Ogura's study on the history and philosophy of mathematics was devoted to the glory of the "Greater East Asia War". Ogura stands on the side of the militarist power.

It is interesting that Ogura published the same article after the war in 1948, by making some revisions, under the title *School of science and technology in the time of revolution – on early École Polytechnique* [Ogura 1948]. The above quoted phrases were replaced by

> Today our country needs a reconstruction of science to perform a Democratic Revolution and to construct a peaceful cultural nation. Therefore the innovation of the institutions of science and the innovation of science education are being discussed in all sectors.

The major portion of the article was not changed but he falsified the words "for the Greater East Asia War" to "for the Democratic Revolution". The same study of the history and philosophy of mathematics serves both war and peace! What does it mean?



讀者諸君へ

今日は、わが國民全體が總力を擧げて、大東亞戰爭を勝ち拔かねばならない重大時機であり、殊に現代の戰爭が科學戰であります性質上、科學技術を學ぶ者の責務は、極めて重いのであります。そこで、今日のわが日本にふさはしい數學の研究乃至教育といふのは、如何にあるべきものでせうか。——この重要課題に對する正しい指針を、歷史的反省の下に、探求しようと試みたのが、この書物であります。

思へば、今は故人となられた松田源治さんが、大阪朝日新聞の記者に、

「……高等學校なんかで微分や積分を教へても、果してその何パーセントが工學者や理學者になるのかね。……中學校で幾何三角を教へることもどうかと考へてゐる……」

といふ、感想を語られたのは、當時の文相時代で、昭和九年八月のことでした。あれから今

讀者諸君へ 一

Translation:
To the Readers
Today is a serious time to fight the Greater East Asia War with all the might of our nation. Especially contemporary war is a war of science, and the duty of those who study science and technology is very heavy. How should research and education in mathematics fit today's serious task for Japan? – I tried in this book to find a correct guiding principle for this serious task by reviewing history.
When Mr. G. Matuda said to a reporter of the OsakaAsahi (newspaper): "They teach calculus in high schools. But what percent of them will become scholars of technology or science? ... I doubt whether it is necessary to teach geometry and trigonometry in junior high schools"; he was the Minister of Education. It was in August 1933, at that time [next page] *less than ten years earlier. Today everyone recognizes that mathematics ia a very sharp-edged tool. If you lost the Japanese Spirit, then you could not construct Japanese mathematics. Therefore if we did not highly develop mathematics as a weapon, we would not know how to apologize to brave soldiers in the front line...*

Figure 1. *Left*: the first page of Ogura's 1944 book on *Mathematics in Wartime*; *right*: English translation. After 1945 lending of extant copies was banned and the book was excluded from Ogura's *Collected Works*.

Y. Kondō says in the commentary to [Ogura 1–8, 1973–1975, Vol. 1]:

> The fact that the lecture given during the war can be accepted after the war without major change shows the consistency of Ogura's thought. This is a rare case in Japan in that time when apostasies and disappointments were in vogue.

The author cannot agree with this affrmative estimation. Ogura's is not consistency but unprincipledness. T. Hirosige writes [Hirosige 1965, p. 123]:

> Here I do not intend to blame Ogura for unprincipledness. The problem I want to propose is that the contention described by Ogura with emphasis in that article can claim its raison d'être both as that which, during the war, gives a guiding policy for science and technology to win the war, and as that which, after the war, gives a guiding principle for science and technology to construct

> a peaceful nation and Democratic Revolution. This was done only by changing the adjective phrases.
>
> Therefore we must recognize that the general canons of the progress of science and the innovation of science education can be applied to any epoch and to any society if the epoch or the society needs science. In fact it is not the case that the development of science until now has been only combined with the ideals of peace and democracy.

T. Hirosige asserts that ignorance of the historical character of science leads to science-supremacism: if progress in science can be achieved, any thing, even military research, can be done.

The author thinks that this is a very important point in reconsidering the social responsibility of mathematicians. When a mathematician is doing his study motivated only by pure curiosity, can he claim that he is innocent of its social function? The author does not think so. Is this position too "ethical"?

6 "Consistency" of Ogura

Why did Ogura write such an article as *Rôle of Scientists under the present emergent situation*, [Ogura 1941], which claims the necessity of control of science and technology by the military state? That he charged himself with that responsibility as Chief Director of the Tokyo College of Science may be one of the reasons: *It is not the consciousness of men that determines their existence, but, on the contrary, their social existence determines their consciousness*, as K. Marx wrote 1845 in *Thesen über Feuerbach*. Perhaps there are other reasons.

Those who adore Ogura say that their teacher was consistent in his thought through his whole life: he was fighting for Japan's modernization in the field of mathematics and mathematics education. In fact in his article *Rôle of scientists...* [Ogura 1941], he wrote (to his fellow scientists):

> You are extremely afraid of the control of scientific study. But in fact there has been more terrible and worse control in your narrow field of science than control by bureaucrats. It is the "territories" in the scientific world, isn't it? Stupid guys are building their nests in universities, and remain safe until retirement age without any important work. They do so by dint of the "territories". You are afraid of the innovative control of scientific study which intends to get rid of this feudalistic guildship. Do you advance "the freedom of study" today? It might be a word for self-justification or defence of territories. Do you pass with territorialism under such an emergent situation of the State? "The freedom of study" or "the science for science", these sublime slogans, cannot justify your vulgar behaviour.

Here he opposes the feudal and closed character of the academic world in prewar Japan and insists on the necessity of modernization. One can say that in this sense he is consistent. But it should be pointed out that the innovation of

science and technology should be done not by bureaucratic control of a warlike power but by democratic criticism by people in peace.

To this, T. Hirosige [Hirosige 1973, p.169] wrote:

> Unexpectedly K. Ogura wrote the article "Rôle of scientists...", in which he insists: "Control strongly the study of science and technology for the purpose of the State." But this does not mean his wholehearted conversion. Ogura says that scientists who are opposed to control of science are "gang leaders content with things as they are" and bigoted to the "feudalistic guildship", who want to protect their territories. Ogura censures them because they are afraid that the "innovative control of scientific study" will get rid of their feudalistic privileges. In other words Ogura is repeating here his longcherished advocacy of anti-feudalistic modernization.

Maybe this is true. But the author thinks that Ogura's strategy to achieve anti-feudalistic modernization of science and technology by dint of control by the brutal warlike Tennoist power was wrong. This shows the half-bakedness of Ogura's democratic thought.

Of course, it is easy to criticize Ogura's thought for us after the war, but his attitude was taken under serious situations. After the war Ogura wrote in *Reminiscences*, [Ogura 1949]:

> I was neither a fascist nor a governmentpatronized scholar, but I was neither a so-called defeatist. At that time, when the international situation was already progressing for, we should make preparations for war. What will happen if war commences without any preparation? I thought we should do the best rather than to keep silence. Thus I wrote that article, which should be totally criticized from today's view point.

To keep silence or to cooperate with the war of aggression? K. Ogura took the latter choice. But there were numbered scholars or literary persons who kept silence during the war. For example the famous writer Kahū Nagai (1879–1959), whose works Ogura loved in his youth, was one of them. Nagai was addicted to the nostalgia of good old Tokyo and writing his secret war-weary diary [Nagai 2001]. Conservative Nagai kept silence while progressive Ogura wrote a bellicose appeal. This is an irony of history. Ogura's choice of attitude was not an inevitable one. From the above passage of his *Reminiscences* [Ogura 1949] a tone of his self-justification can be read.

In fact it is very diffcult for pure mathematicians to choose a politically correct attitude when the situation is drastically changing. This is not irrelevant to contemporary mathematicians. How many mathematicians in the world are making efforts to stop the global, arrogant and "unilateral" military operations of US imperialism today? Ogura's case is a good lesson learned from Mathematics and Japanese history.

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