Activities of "The History of Mathematics Society of Japan (Nihon Sugakushi Gakkai)"*

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The History of Mathematics Society of Japan started, as the present writer reported previously in our journal***, for the purpose of researches in the history of mathematics in general, not confined in particular fields of mathematics. However, the members of Society are inclined to restrict their field to Japanese mathematics and concentrate their studies in the history of the traditional ones —*WASAN*****. In fact, most of the members, with the exception of a few, have been keenly interested in *WASAN*.

The following are the table of contents which appeared in the recent issues of *Sugakushi Kenkyu******* (or Journal of History of Mathematics, Japan).

K. SHIMODAIRA: "A history of divergent series." (1967, No.33)

Eiji CHIKIRA: "*Sangaku* of the Narushima Hachiman Shrine." (1967, No.33)

Kusuo TAKEDA: "Chinese mathematics in the stream of the world history." (1967, No.34)

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*** *Japanese Studies in the History of Science,* 1966, No.4.

**** 和算 – Japanese Mathematics which was prevalent during the Edo period (1603–1867).

***** 数学史研究 *The Journal of History of Mathematics, Japan.*

Shiko IWATA: "Problems of *sangaku** – the causes of the long disputes between *Saijo* school and *Seki* school." (1967, No.35)

Zen-ichiro KATANO: "Mathematical education and history of mathematics." (1967, No.35)

Ryozo FUNAYAMA: "The mathematical education of postwar Japan (1)." (1968, No.36**)

R. FUNAYAMA: "The mathematical education of postwar Japan (2)." (1968, No.37)

Shigeru KANDA: "On *Sanyoki****, the oldest of Japanese existing mathematical books which was printed ca. 1620." (1968, No.37)

Taisuke NOGUCHI: "Mathematical recreations in *Kikubuntoshu***** (1722)." (1968, No.37)

K. SHIMODAIRA: "Some problems in the study of the history of Japanese mathematics (1)." (1968, No.37)

Shin-ichi OYA: "The meaning of the history of mathematics dealt with in the general education course of Japanese universities." (1968, No.38*****)

Kogo HAGINO: "Significance of studying the history of Japanese mathematics." (1968, No.38)

K. SHIMODAIRA: "Significance of studying the hisotry of western mathematics." (1968, No.38)

Z. KATANO: "How did Japanese teachers of mathematics understand the utility of mathematics ?" (1968, No.38)

Genzo SUGA: "On the mathematical education in the early years of the *Meiji* period (1868–1902)." (1968, No.38)

Hisao SUZUKI: "A history of the development of calculating instruments and machines – a fundamental knowledge for high school teachers of mathematics." (1968, No.38)

Shigeo TAKAGI: "Western mathematical recreations available in mathematical education." (1968, No.38)

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* 算額

** A special issue featuring the history of Japanese surveying.

*** 算用記

**** 規矩分等集

***** A special issue featuring mathematical education and history of mathematics.

T. NOGUCHI: "Eastern mathematical recreations available in mathematical education." (1968, No.38)

Ryo-ichi TAKEKUMA: "On two curves of which R. DESCARTES did not treat in his *La Géométrie.*" (1968, No.39)

Tamotsu MURATA: "How should the history of mathematics be studied in our actual state?" (1968, No.39)

Ichiro YAMAMOTO: "On Shinko SEINO (or KIYONO)." (1968, No.39)

Z. KATANO: "The mathematical education and history of mathematics (6)." (1968, No.39)

K. SHIMODIRA: "Some problems in the study of the history of mathematics (2)." (1968, No.39)

Heizaemon KATO: "How was infinite series to calculate the length of arc formulated in Japan ?" (1969, No.40*)

R. FUNAYAMA: "The mathematical education of postwar Japan (3)." (1969, No.40)

Kyuji SUZUKI: "A history of the treatment of inequality subject in Japanese education (1)." (1969, No.40)

Shiko IWATA: "Modern solutions of problems of *WASAN.*" (1969, No.41)

K. SHIMODAIRA: "Some problems in the study of the history of Japanese mathematics (3)." (1969, No.41)

K. SUZUKI: "A history of the treatment of inequality subject in Japanese education (2)." (1969, No.41)

Z. KATANO: "Mathematical education and the history of mathematics (7)." (1969 No. 41)

Of the books published by the members of the society, the studies of *Sangaku* are largest in number. *Sangaku* is a kind of tablet on which are written some *WASAN* problems or their solutions. It was generally dedicated to a temple or a shrine in a form of a prayer, and hung on the wall of the temple or the shirne. The custom of delicating of *Sangaku* was already popular ca. 1660 and spread throughout Japan. Present-day Japanese people, however, find *Sangaku* unintelligible, because the custom went out of fashion more than 60 year ago.

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* No. 40 contains a list of articles from No.1 to No.39.

It is not clear how many *Sangaku-tablets* were hung, but we suppose there were tens of thousands of them. It is true that it was very difficult for Japanese mathematicians to afford to publish their books, but some hundred kinds of mathematical books were printed during the *Edo* period (1603–1867). There must have been many manuscripts of unpublished works. There were also many mathematicians who are known to us only by means of *Sangaku.*

Sangaku gives us a key not only to the content of *WASAN* but also to some local histories of Japan. Indeed *Sangaku* should be studied systematically by students of the history of Japanese mathematics. However, it is unfortunate that most of them are inclined to study separetely in this field.

The following are publications of the members of the society.

Kogo HAGINO: "*Sangaku Kenkyushi* (A History of *Sangaku* Study,2 vols. Revised ed. Fuji Junior College Press, Tokyo, 1968).

A commentary on articles and books on *Sangaku. Shimpeki-sampo**, a collection of problems described on *Sangaku,* which was published in 1789, and its sequel (or *Zoku-shimpeki-sampo***, 1807) was reproduced.

K. HAGINO: *Zoku Sangaku Kenkyushi* (A Sequel to *Sangaku Kenkyushi*, Fuji Junior College Press, Tokyo, 1968).

Explanations and reproductions of *Sangaku,* found in various provinces of Japan or cited in other sources, have been published by the following people.

Motohisa MATSUOKA, Eiji CHIKIRA, Hachio NORII, Yoshi OKADA, Masaaki IIZUKA, Kozo OYA, Taisuke NOGUCHI, Hiroshi AMANO, Yoshimasa MICHIWAKI, Akira HIRAYAMA, Chizuru AKABANE, Nobuya NAKAMURA, Hideo KUWABARA, Ichiro YAMAMOTO, Toshio MATSUZAKI, Masuo HONDA, etc.

Ryuji YOSHIDA: *Nippon no Sugakusho* (Interpretation of *WASAN* Books , Private ed.).

An explanatory book of *Zoku-shimpeki-sampo* (1807) and *Zoku-shimpeki-*

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* 神壁算法 (1789)

** 続神壁算法 (1807).

*sampo-kigen** (1833)

Youemon YAMAZAKI: *Jingoki no Kenkyu (Zurokuhen)* (A Study of *Jingoki,* Illustrations part, Morikita Shuppan, Tokyo, 1966).

In 1627, the Warring-states period in Japan ended and peace was resumed, *Jingoki,*** one of the most famous *WASAN* books, was published.

This well-illustrated book thoroughly explains mathematics from the elements to advanced stages, and contains many mathematical recreations to stimulate readers; some of the illustrations are printed in three colours – red, green and black. There are some who have the opinion that, as a popular book of elementary mathematics, its construction is better than any other books of this kind in the world. Some say that the mathematics of the *Edo* period began with this book. This book not only covers a history of mathematics, but also contains pictorial wood-cut printing (*Ukiyo-e*), elementary mathematical text-books, economics and many other subjects. Though *Jingoki* was published in large numbers, it is very difficult to determine the first edition. Y. YAMAZAKI reproduced a copy of the presumably first edition and a few later editions, explaining them in his book.

Youemon YAMAZAKI, Otohiko TAKEUCHI and Hisao SUZUKI: *Nippon no Soroban* (The Soroban in Japan, Akatsuki Shuppan, Tokyo, 1968).

It is not an exaggeration to say that there is no Japanese family which has no *Soroban* (Japanese abacus). All of us can use *Soroban* easily for arithmetic, and some for such complicated calculation as evolution and involution. This book explains many types of *Soroban,* with photographs, in an historical order.

H. SUZUKI: *Keisan-ki-ki Hattatsushi* (A History of the Development of Calculating Instruments and Machines, Fuji Junior College Press, Tokyo, 1967).

H. KATO: *Nippon Sugakushi* (A History of Japanese Mathematics, 2 vols, Maki-shoten, Tokyo, 1967–68).

A. HIRAYAMA and M. MATSUOKA ed.: *AJIMA NAONOBU Zenshu* (Naonobu AJIMA's Complete Works, Fuji Junior College Press, Tokyo, 1966).

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* 続神壁算法起源(1833).

** 塵劫記 It is written by Mitsuyoshi YOSHIDA (1598–1672).

Naonobu AJIMA (1732-1798) made many original contributions to *WASAN* such as the discovery of double integral and what is called Malfatti's theorem in the West. HIRAYAMA and MATSUOKA collected all the works of AJIMA's, none of which has ever been published, and they explained these in English.

A. HIRAYAMA and M. MATSUOKA ed.: *AIDA SANZAEMON YASUAKI* (Fuji Junior College Press, Tokyo, 1966).

Yasuaki AIDA (1747–1817) was a mathematician who wrote more books than any other mathematicians of his day. He wrote 600 mathematical books and 1500 other titles, and had many followers. Since he was born in the Tohoku province, northeastern Japan, most of his followers lived in the Tohoku province and they had developed the primary and secondary mathematical education in this province during the *Meiji* period (1868–1912).

AIDA is still respected in Yamagata-ken, his native prefecture. The above book was published in memory of the centenary of AIDA's death, in which his main work *Sampo-tenshoho-shinan** (1811) was reproduced together with explanatory notes.

K. SHIMODAIRA and K. HAGINO: *Nippon Sugaku no Shin-chishiki* (A Guide to a History of Japanese Mathematics, Fuji Junior College Press, Tokyo, 1968).

There are many other guides to the history of Japanese mathematics. This guide is characterized by many pictures and an easy explanation.

Fuji Junior College Study Group of History of Science ed.: *Kyoshi no Tame no Sugakushi Koza (Dai 1 shu)* (Lectures on the Hisotry of Mathematics for Teachers. Vol. 1, Fuji Junior College Press, Tokyo, 1967).

Since only a few Japanese universities give lectures on the history of mathematics, most people have a poor knowledge of this subject. The History of Mathematics Society of Japan has made efforts to popularize the history of mathematics offering lectures of the subject twice a year. The book mentioned in the above consists of those lectures. Its table of contents is as follows.

Shigeru NAKAYAMA: "Mathematics and science in the western culture."

T. MURATA: "A history of the foundations of mathematics."

K. SHIMODAIRA: "Mathematics in early *Edo* period."

S. OYA: "A history of primary mathematics education."

Z. KATANO: "Mathematical education and history of mathematics."

K. HAGINO: *"Sangaku."*

T. NOGUCHI: "A history of mathematical recreation of Japan."

S. TAKAGI: "Mathematical recreation since the *Meiji* period."

H. SUZUKI: "On the introduction of *Soroban.*"

The following is a list of recent lectures given by the society.

Katsuji MIYAZAKI: "A history of maps."

S. OYA: "Congruity of triangles."

Z. KATANO: "The role of the history of mathematics in the mathematical education of high schools."

Toshio WATANABE: "The way to compose a calendar in old calendar days."

K. SHIMODAIRA: "A history of divergent series."

S. OYA: "The beginning of four rules problems during the *Meiji* period."

A. HIRAYAMA: "On the contribution of Yasuaki AIDA."

K. SHIMODAIRA: "A biography of Yasuaki AIDA."

S. OYA: "Axiom of parallel lines."

Kesakatsu KOIZUMI: "A history of weights and measures."

H. SUZUKI: "A history of slide rule."

S. OYA: "On the symbols of *WASAN.*"

Z. KATANO: "How to apply the topics in the history of mathematics to education."

H. KATO: "On the formation of infinite series in the *Edo* period."

K. SHIMODAIRA: "Takakazu SEKI (or Kowa SEKI) (ca. 1640–1708)–A prominent mathematician."

S. OYA: "How to use *Sangi**."

Koshiro NAKAMURA: "Problems in mathematical symbolism."

A. HIRAYAMA: "On the contribution of Takakazu SEKI."

K. SHIMODAIRA: "An outline of the history of Japanese mathematics."

S. OYA: "A history of the teaching of function and set in primary education."

Kikuo MIHARA: "The mathematical education during the last war."

S. OYA: "On the fraction of old China."

Toshio MIYAMOTO: "The development of mathematical method in economics."

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* Counting-rods made of wood.