

Classic apparatuses for psychological experiments preserved in the psychology laboratory of Tohoku University

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From among the apparatuses purchased for psychological experiments from 1922 to 1935, more than 70 apparatuses have been preserved in the psychology department of Tohoku University. In this article, we attempted to verify whether there is a one-to-one correspondence between the existent apparatuses and the records of the apparatuses in a 1935 account book; further, we attempted to examine the product catalogs that were created by the manufacturers when the apparatuses were manufactured. The results revealed that this collection of apparatuses is the largest preserved collection of classic psychological apparatuses in Japan. With regard to imported apparatuses, there are more than ten apparatuses that can only be found in the psychology laboratory of Tohoku University in Japan.

Key words: psychological apparatus, Tohoku Imperial University, history of Japanese psychology

The psychology laboratory of Tohoku Imperial University was founded in 1922. Dr. Tanenari Chiba, the first professor of the laboratory, who was known for having purchased Wundt's Library (Wade, Sakurai, & Gyoba, 2007), introduced a considerable number of foreign-made as well as Japanese laboratory apparatuses. In 1991, Dr. Kinya Maruyama, a former professor of the laboratory, by chance, found an old account book entitled *Showa 10-nen shirabe kikai-kigu card hikaebo*, which was compiled in 1935 by the then-existing staff of the laboratory (Maruyama, 1999). More than 200 apparatuses, which had been purchased from foreign and Japanese manufacturers, were registered in the book. However, quite a few apparatuses were lost mainly because the evacuation as a result of the air raid during World War II, the relocation of the laboratory from the Katahira campus to the Kawauchi campus in 1973, the Off-Miyagi Earthquake in 1978, and the Off Pacific Coast of Tohoku Earthquake in 2011. Currently, about 70 apparatuses are stored in the psychology laboratory of Tohoku University. The aim of this article is to verify whether there is a one-to-one correspondence between the existent apparatuses and their registration records in the 1935 account book.

One of the authors of this research, namely, Jiro Gyoba, along with his graduate student, Souta Hidaka, has previously conducted an investigation on the existent apparatuses of the Tohoku University laboratory (Hidaka & Gyoba, 2009), and the other author, Hirokazu Yoshimura, conducted a full-scale investigation on the apparatuses of the laboratory in March 2015 as a committee member of the Historic Document Preservation Committee of the Japanese Psychological Association. He will soon publish a document (in Japanese) containing newly found facts about the apparatuses, on the basis of his investigation (Yoshimura, in

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press). In this article, we provide the latest information concerning the comprehensive picture of the classic apparatuses preserved in the psychology laboratory of Tohoku University.

Table 1 provides a list of the 76 classic apparatuses remaining in the laboratory. The leftmost column of Table 1, labeled “ID,” lists the registration numbers that were assigned (to the apparatuses) at the time of the investigation in 2015. The second column from the left, labeled “apparatus name,” contains the apparatuses’ German names taken from the German catalogs, the apparatuses’ English name taken from the Japanese catalogs, or the apparatuses’ common English names. In cases where the apparatuses’ German names are provided, the first letter of each noun is capitalized, and in the cases where the apparatuses’ English names taken from the Japanese catalogs are provided, the first letter of the first word is capitalized. The middle column lists the apparatuses’ manufacturers’ names and, if available, the product numbers taken from the manufacturer’s catalog. To create this table, we referred to the following catalogs: Zimmerman (1928), Max Kohl (n.d.), Shimadzu (1922, 1926), and Yamakoshi (1933). The second column from the right, labeled “notes,” lists the year in which the apparatuses were purchased, and the apparatuses’ importer (in the case of imported items); specifies whether the apparatus is a “domestic product” (in the case of Japanese products); and contains any additional pertinent comments. The rightmost column lists the apparatuses’ registration numbers as they appear in the 1935 account book; the first symbol of the registration numbers (which range from I to IX), represents the research domain or the purpose of the apparatuses. Table 2 lists what these symbols represent and the existing number of apparatuses belonging to each research domain.

Table 1 contains three apparatuses that were provably purchased after 1950s (TH00018, TH00064, and TH00072), and three mental tests which were developed by the second professor

Table 1. List of classic psychology apparatuses stored in Tohoku University.

ID	apparatus name	maker (catalog number ¹)	notes	account book number ²		
TH00001	Photometer nach Gehlhoff-Schering	C.P.Goerz	py:1925 importer: Mitsubishi	II	8	
TH00002	Color Mixer (type C)	Yamakoshi Kosakusho (No.51C)	domestic product			
TH00003	Meumann's univesal contact apparatus	E. Zimmermann (Nr.1950)	py:1926 importer:Mitsubishi	IV	3	a-c
TH00004	Michotte's aesthesiometer	G.Boulitte	py:1925 importer:Mitsubishi	I	3	
TH00005	control hammer	E. Zimmermann (Nr.1305)	py:1923 Nr.1305 importer:Mitsubishi	IV	4	
TH00006	Reisetonometer nach Hornbostel	E. Zimmermann (Nr.1540)	py:1925 importer:Mitsubishi	III	8	
TH00007	Zwaardemaker's instrument for testing sense of smell	E. Zimmermann (Nr.1050)	py:1925 importer:Mitsubishi	I	7	i-iv
TH00008	Stroboscope (zoetrope)	Takei Seisakusho ³	py:1924 domestic product	II	3	
TH00009	Chronograph		importer:Mitsubishi	IV	1	a-c
TH00010	Apparat zun Exposition nach Hack- Länder	E. Zimmermann (Nr.741)	py:1925 importer:Mitsubishi	V	4	

Table 1. Continued.

TH00011	time marker	Ando Kenkyusho	py:1925 domestic product			
TH00012	keyswitch	Shimadzu Corporation	py:1926 domestic product			
TH00013	Degitimer (time control unit)	Takei Kiki Kogyo	domestic product			
TH00014	Labialpfeife mit verschiebbararem, geteiltem Stempelc1-c2	Max Kohl (88351)	importer: uncertain			
TH00015	Hipp chronoscope	E. Zimmermann (Nr.1260)	py:1925 importer:Mitsubishi	IV	5	a-b
TH00016	Tatz von 10 Resonatoren nach Helmholtz	Max Kohl (88602)	py:1924 importer:Mitsubishi One set (10 pieces)	III	3	a-j
TH00017-1	voice key		py: 1923 importer:Mitsubishi	III	1	
TH00017-2	voice key	E. Zimmermann (Nr.1412)	py:1925 importer:Mitsubishi	III	15	
TH00018	Memory-Tape (memory drum)	Takei Kiki Kogyo	domestic product			
TH00019	3 x 7spot-lights presentation apparatus	Ando Kenkyusho	py:1925 domestic product			
TH00020	reed-type sound generator					
TH00021-1	dynamometre de Verdin (small)	G.Boullitte	py:1925 importer:Mitsubishi	VII	1	
TH00021-2	dynamometre de Verdin (large)	G.Boullitte	py:1925 importer:Mitsubishi	VII	2	
TH00022	Taktiervarrichtung nach Wundt	E. Zimmermann (Nr.1940)	py:1925 importer:Mitsubishi	III	10	
TH00023	circle cutter	Ando Kenkyusho	py:1925 domestic product	II	17	
TH00024-1,2	head and cold spot detector	Shimadzu Corporation	py:1925 domestic product	I	8	
TH00025	rheostat	Shimadzu Corporation	py:1925 domestic product	VIII	③	2
TH00026	Tischtransmission	E. Zimmermann	py:1925 importer: Mitsubishi	VIII	③	6
TH00027	resistor (1110 ohm)	Shimadzu Corporation	py:1925 domestic product	VIII	③	12
TH00028	Schriftdruckregistrieren nach Schlag (part)	E. Zimmermann (Nr.1066)	py:1925 importer:Mitsubishi	VII	3	
TH00029	KY' Memory Apparatus (memory drum)	Yamakoshi Kosakusho (No.1002)	py:1921 domestic product	V	7	
TH00030	Mirror Drawing Appaaratus	Yamakoshi Kosakusho (No.911)	py:1935 domestic product	II	23	
TH00031	Form Board	Yamakoshi Kosakusho (No.1211A)	py:1921 domestic product	V	8	
TH00032	Induktions-Apparate	E. Zimmermann (Nr.1902)	py:1925 importer: Mitsubishi	VIII	③	5
TH00033	Perimeter nach Macolonald Harry-Lang samt Stativ	F.Fritsch	py:1924 importer:Mitsubishi	II	7	a-d
TH00034	stereoscope	Shimadzu Corporation (1926's catalog No.68)	py:1925 domestic product	II	15	i

Table 1. Continued.

TH00035	Scripture's color sense tester	Shimadzu Corporation (1926's catalog No.56)	py:1926 domestic product	II	16	
TH00036	Bergstroem's Pendulum Chronoscope	Yamakoshi Kosakusho (No.1821)	domestic product			
TH00037-1	Sorting Cards	Yamakoshi Kosakusho (No.1302)	py:1935 domestic product	II	25	
TH00037-2	Portable Tachistoscope	Yamakoshi Kosakusho (No.802)	domestic product			
TH00038	chronoscope with electromagnetic switch	Ando Kenkyusho	domestic product			
TH00039-1	elektromagnetische Stimmgabel	E. Zimmermann (Nr.172)	py:1925 importer:Mitsubishi	III	14	
TH00040	Tertienzahler 1/100 Sekunden-Messung or electromagnetic pulse generator	F. L. Löbner	py:1925 importer: Mitsubishi	IV	7	
TH00041	Ammter	Shimadzu Corporation	py:1925 domestic product	VIII	③	4
TH00042	Voltmeter	Shimadzu Corporation	py:1925 domestic product	VIII	③	7
TH00043	KY's Dynamometer, Back and Legs	Yamakoshi Kosakusho (No.1431)	py:1935 domestic product	VII	8	a-b
TH00044	Marey's Sphygmogtaph	Yamakoshi Kosakusho (No.2306)	domestic product	VI		
TH00045	Lehmann's apparatus for the accurate testing of the ability to make eye estimations of distance	Yamakoshi Kosakusho (No.562)	domestic product			
TH00046	Plethysmograph	E. Zimmermann (Nr.3050)	py:1926 importer:Mitsubishi	VI	2	a-c
TH00047-1	Tonmesser nach Appunn 65 Tone von c1 bis c2	Max Kohl (88582)	py:1924 importer:Mitsubishi	III	6	
TH00047-2	intervallapparat	Max Kohl (88587)	py:1924 importer:Mitsubishi	III	7	
TH00048	Hörschärfeprüfer nach Zoth	E. Zimmermann (Nr.1450)	py:1925 importer: Shimadzu	III	12	a-b
TH00049-1	Jaquet's graphic chronometer	G.Boullitte	py:1925 importer: Shimadzu	IV	6	i
TH00049-2	Jaquet's graphic chronometer	James Jaquet A.G.	py:1933 importer:Shimadzu	IV	6	ii
TH00050	soundhammer	Ando Kenkyusho	py:1925 importer: Shimadzu	VIII	③	17
TH00051-1	Stimmgabel auf Resonator kasten für die Tonleiten c-h d-e	Max Kohl	py:1924 importer: Mitsubishi	III	5	i-v
TH00052	wooden eye frame	perhaps handmade object	domestic product			
TH00053	Gedachtnisapparat nach Lipmann	Max Marx & Berndt	py:1923 importer. Mitsubishi	V	3	a-c

Table 1. Continued.

TH00054	monochord	Shimadzu Corporation (1926's catalog No.50)	py:1925 domestic product	III	17	
TH00055	Pneumograph A	Yamakoshi Kosakusho (No.71)	py:1935 domestic product	VI	3	
TH00056-1	Netschajeff's tachistoscope	E. Zimmermann (Nr.615)	py:1925 importer:Mitsubishi	V	5	
TH00056-2	Netschajeff's tachistoscope	Yamakoshi Kosakusho (No.2301)	perhaps domestic product, bigger than TH00056-1			
TH00057	Discrimination of Bright Apparatus	Yamakoshi Kosakusho (No.71)	py:1935 domestic product	II	22	a-b
TH00058	Kymograph (part)		perhaps domestic product			
TH00059	Einfache Galtonpfeife	E. Zimmermann (Nr.1697)	py:1925 importer:Mitsubishi	III	11	
TH00060	Baumanns neue Fanbentonkarte (color sample book)	P. BAUMANN, AUE i. SA.	py:1933 importer:Maruzen	II	21	a-b
TH00061	tonometer	Takata	domestic product			
TH00062	throat note recoder according to Krüger-Wirth	E. Zimmermann (Nr.1512)	py:1925 importer:Mitsubishi	III	13	3
TH00063	Kurvenmesstisch (curve measuring tables)	E. Zimmermann (Nr.3960)	py:1925 importer: Mitsubishi	VIII	②	10
TH00064	DC ammeter	YEW	domestic product			
TH00065	eye frames for tachistoscope		domestic product			
TH00066	Owaki' intelligence test for bling children	Sankyobo	domestic product			
TH00067	Owaki' intelligence test for mentally redaded children	Sankyobo	domestic product			
TH00068	Suzuki-Binet's intelligence test	Toyo-Tosho	domestic product			
TH00069	Smedley's Dynamometer	Yamakoshi Kosakusho (No.1402)	domestic product			
TH00070	Druckwage nach Stratton	E. Zimmermann (Nr.974)	py:1925 importer: Mitsubishi	I	5	a-b
TH00071	wooden product	perhaps handmade object				
TH00072	electric color mixer	Takei Kiki Kogyo	domestic product			
TH00073	meter panel (part)					
TH00074	soundhammer		domestic product			
TH00075	Bertin's commutator	Shimadzu Corporation (1922's catalog No.1406)	domestic product	VIII	③	10
TH00076	prism	Shimadzu Corporation (1922's catalog No.893)	domestic product	II	18	

¹ See text about the catalog from which each number is quoted.² Registration number in the 1935's account book³ TH00008 may be suspected to include other than the product made by Takei Seisakusho.

of the laboratory, Yoshikazu Owaki (TH00066, TH00067, and TH00068.). Therefore 70 items (76 items minus the 6 aforementioned items) can be regarded as classic apparatuses. On the other hand, for the six items that have a branch number (TH00017, TH00021, TH00037, TH00047, TH00049, and TH00056), it would be appropriate to divide the apparatuses into two different types. As a result, if these six items are added to the 70 apparatuses, we get 76 apparatuses, which is the maximum number of classic apparatuses stored in any Japanese facility. With regard to the imported apparatuses, there are more than ten apparatuses that can only be found in this laboratory in Japan. With regard to the domestic apparatuses, none of the products made by Ando Kenkyusho can be found in any other facility.

Table 1 contains eight apparatuses for which there is ambiguity regarding certain aspects; out of these, some are imported apparatuses (TH00009, TH00017-1, TH00019, and TH00040) and the others are domestic apparatuses (TH00058, TH00065, TH00073, and TH00074).

Out of these eight apparatuses, the issue surrounding TH00040 is the most puzzling because the registration number painted on the side of the wooded stand of TH00040 (i.e., IV 7) does not correspond to the registration number assigned to the apparatus in the 1935 account book. Figure 1 depicts TH00040, which used to be called “electromagnetic pulse generator” by the laboratory staff. However, the apparatus corresponding to IV 7 in the 1935 account book is “Tertienzahler 1/100 Sekunden-Messung.” Therefore, it is unlikely that both these apparatuses are the same thing.

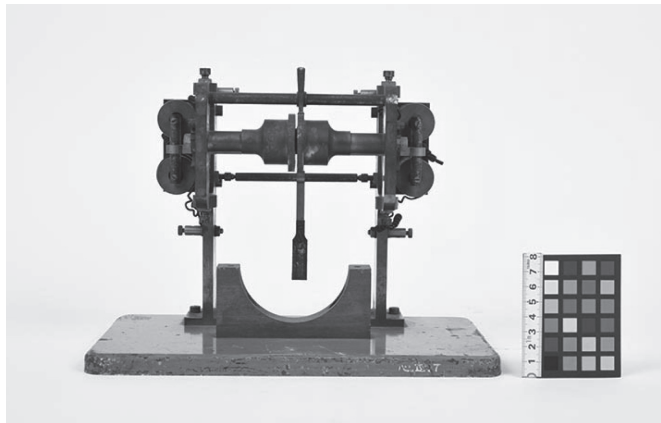


Figure 1. TH00040: “Tertienzahler 1/100 Sekunden-Messung” or electromagnetic pulse generator? “IV 7” has been painted on the front side of the wooded stand.

There is another questionable point concerning TH00040. According to the 1935 account book, the purchase price of IV 7 was exceptionally high. While the price of “Hipp tachistoscope” (TH00015) was 672 yen and that of “Photometer nach Gehlhoff-Schering” (TH00001) was 1416.47 yen in the mid-1920s, “Tertienzahler 1/100 Sekunden-Messung” was purchased for 2169.46 yen in the same year, and it is clearly the most expensive of all the

apparatuses recorded in the 1935 account book. However, it seems implausible that the price of “Tertienzahler 1/100 Sekunden-Messung” would be so high.

There is also some ambiguity with regard to TH00008 (Figure 2) because there are apparent inconsistencies with regard to the year in which it was purchased/developed. According to the 1935 account book, “II 3” was purchased in 1924. On the other hand, Takei Seisakusho which manufactured the apparatus was established in 1927. Therefore, since Takei Seisakusho could not have possibly manufactured the zoetrope before the company itself was founded, it appears unlikely that “II 3” was manufactured by Takei Seisakusho. The notable point is that the zoetrope contains two cylinders, one of which (i.e., the left one), has been taken off the stand. While the registration symbol “II 3” is painted on the bottom of the left cylinder, Takei’s trade mark plate has been fixed on the stand. In addition, the inter-slit intervals of the two cylinders are different. We suspect that only the left cylinder is “II 3” and that it is not a Takei Seisakusho product.



Figure 2. TH00008 has two cylinders. “II 3” has been painted at the bottom of the left cylinder and the trade mark plate of Takei has been fixed on the stand.

As described above, Table 2 shows the number of apparatuses belonging to each research domain or the area in which the apparatuses are meant to be used. The total number of apparatuses recorded in the 1935 account book is 204, and the number of existent apparatuses with symbols (i.e., from I to IX) is 56 (out of the 76 apparatuses). A number of the purchased apparatuses were supplementary apparatuses (VIII) and tools (IX); however, most of them do not exist today, perhaps because they are apparatuses that are not exclusive to psychology and because they are priced reasonably. As for the psychological apparatuses (i.e., the apparatuses with symbols I through VII), about half the purchased apparatuses currently exists.

Currently, the existing 76 apparatuses have been kept carefully in two large cabinets with glass windows. If anyone visits the psychology laboratory of Tohoku University, they can

Table 2. Number of apparatuses belonging to the domain from I to IX.

symbol	research domain	existing apparatus	registered apparatuses in 1935's account book
I	touch, smell, and taste	4	10
II	vision	11	28
III	audition	13	20
IV	time sense and time measurement	7	11
V	attention, memory, association, and thinking	5	10
VI	emotion and its expression	3	4
VII	intention and operation	4	8
VIII	supplementary apparatus	9	60
IX	tools	0	53
	total	56	204

freely touch and manipulate the apparatuses (Figure 3). Also, the photos and the metadata of the 76 apparatuses including all the pages of the 1935 account book are open to the public on a website operated by the Japanese Psychological Association (URL: <http://psychmuseum.jp/device/>).



Figure 3. Recently, Profs. Stuart Anstis and Patrick Cavanagh visited the psychology laboratory of Tohoku University. They enjoyed manipulating and taking photos of the classic apparatuses.

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