

5419/7

Data on the Investigation Organ
(First Report)

29th September, 1945

Department of Army

Particulars of Researches made in Provisions Depot

1. Name: Central Army Provisions Depot, Research Division
2. Location: Etchū-jima, Fukagawa-ku, Tokyo-to
East Asia Agricultural Laboratory, Shimetakaido,
Suginami-ku, Tokyo-to
3. Owner: Department of Army (East Asia Agricultural
Laboratory is a private foundation)
4. Establishment: Researches had been made concerning military
provisions and commissary instruments at
Etchujima, Fukagawa-ku, Tokyo-to, until 10th
March, 1945, when the major part of the
establishments was destroyed by air raid.
Research of the commissary instruments was
continued at the same place, after having the
ruins disposed. In regard to research on provision
four rooms in the East Asia Agricultural
Laboratory were rented and with the half-
burnt equipments put in order chemical
research was commenced.
5. Number of persons:

Clerical Staff (Including the Director)	
Officials (Higher)(Incl. military officers and civilians)	3
Officials (Minor)	4
Employees	16
Technical staff (Including the Director)	
Officials (Higher)(Incl. military officers and civilians)	17
Officials (Minor)	18
Employees	89
Total	147
6. Equipments and Items of Researches:

Number of apparatuses and instruments in
the laboratory is as shown in List Nos.
1 and 2.
Items of researches from 1940 to 1945 are
as shown in List Nos. 3

List No. 1

List of equipments, instruments etc. of
Hamadayama Laboratory Control Army Provisions Depot.

Items	Unit	Number
Electric thermostat	set	5
Electric Dryer	"	5
Centrifuger	"	5
Microscope	"	2
Electric Ice box	"	2
Rotary Pump	"	3
Desk for Experiment	"	6
Working Desk	"	8
Electric Kettle	"	2
"Kasten"	"	3
Hydro-ion Concentration Colorimeter	"	1
Standard Hydrometer	"	1
Kymographion	"	1
Koch's pasteurization	"	1
Air Compressor	"	2
Chemical Balance	"	3
Standard Thermometer	"	1
Desiccator	"	1
PH Colorimeter	"	1
Medicine Closet	"	3
Balance	"	1
Colorimeter (Dubosk)	"	2

Colorimeter	set	1
Shaking machine	"	1
Calculating machine	"	1
Closet	"	6
Desk for higher officials	"	4
Writing desk	"	9
Revolving chairs	"	6
Chairs	"	28

List No. 2

List of equipments and instruments etc. of
Etchajima Laboratory Central Army Provisions Dept.

Items	Unit	Number
1. Well-boring Motor-car	1	1
2. Electric Cooking Motor-car	1	1
3. Automobile for boiling and carrying water	1	1
4. Baking device	1	2
5. Water-boiling	1	2
6. Vehiels for distribution of hot water	1	1
7. Device for filtering a large quantity of water	1	1
8. Machine for well-sinking motive power	1	1
9. Mud scraping cleaner	1	1
10. Mechanical Devices for separating sea-water	1	1
11. Rice-pounder using no polishing powder	1	1
12. Instrument for pressing and fitting together	1	2
13. Cook-stove, utilizing waste gas and heat	1	14
14. Electric oven for confectionary-making	1	1
15. Kanaoka's Dryer		1
16. Cans for carrying water		50
17. Cans for carrying water on men's backs		4
18. Can for boiling water		10
19. Cooking Device for field operation		10
20. Chinese Kettle		4

21. Pump operated ^d by hand	1	19
22. Filter	1	9
23. Electric water-cleaner	1	4
24. Porcelain Filter	1	3
25. Portable Filter Bag		3
26. Device to examine water pressure	1	1
27. Vibration testing machine	1	1
28. Device for generation of electricity	1	3
29. Machine to test water-proof quality	1	1
30. Machine to test hardness	1	1
31. A.C. Dynamo	1	1
32. D. C. Dynamo	1	1
33. Radio-locator	1	1
34. Gas generator	1	1
35. Universal "Frice" machine	1	1
36. Material tester	1	1
37. Machine to test impingement	1	1
38. Machine to test durability of rubber	1	1
39. Machine to test woven goods by Pellean's method	1	1
40. Experimental High Frequency Generator	1	1
41. Machine for polishing metal	1	1
42. Pilometer	1	1
43. Densimeter	1	1
44. Refractometer	1	1
45. Barometer	1	1
46. Machine to measure horse power	1	1
47. Acetylene-gas generator	1	1

48. Orthotest	1	1
49. Machine to measure humidity	1	1
50. B-Claritt filter	1	1
51. High pressure can to test hydraulic pressure	1	1
52. Steam generator	1	1
53. Separator	1	2
54. Engines (Various forms)	1	18
55. Engine and fly-wheel for auto-cycle		7
56. Transformer ^{Transformer}	1	1
57. Switch-board		1
58. Engine for test	1	2
59. Electric Refrigerator	1	1
60. Compressor	1	1
61. Electric Oven	1	1
62. Manometer	1	1
63. Machine to measure quantity of flowing liquid	1	1
64. Weighing beam	1	2
65. Self-acting balance	1	2
66. Platform scale	1	2
67. Sectional sieve	1	1
68. Portable tents		1
69. Supporters & stakes for tents		68
70. 4 inch Pipe for well-sinking		400
71. Drill-pipe for well-sinking		100

List No. 3

Items of researches, from 1940 to 1945

I. 1940 (Fiscal Year)

Item of research	Practical Researches made on
Special Field Ration	1. Puffed Rice (Field Ration). 2. New type Ration (Glucose Butter)
Food-specification	1. Method of Brewing "Miso" and "Shoyu" for cold district 2. Easy method of polishing kaoliang 3. Electric Sterilization of canned goods.
Vitamin Supplying Food	1. Designing Nourishing Food
Army Provisions Supply and Nourishment	1. Unit Food Supply
Feeding of war horses and dogs	1. Carrying Fodder 2. Feeding Value of seaweeds
Cooking and water supply instruments	1. Electric Cooking Automobile 2. Measure of water supply in Tundra-zone

II. 1941 (Fiscal year)

Food-specification	1. Method of desiccating Food at low temperature 2. Utilization of Flesh and Blood of Sea-beast 3. Method of Electric smoking 4. Efficient method of manufacturing Powder Miso and/Shoyu Powder 5. Method of brewing "Miso and Shoyu" at the same
Vitamin Supplying Food	1. Method to maintain high degree of Vitamin C in dried vegetable. 2. Natural Resources of Vitamin C 3. Stabilization of Vitamin C
Feeding of war horse and dog	1. Carrying Fodder for war dog

III. 1942 (Fiscal year)

Special Field Ration

1. Special Field Ration
2. Method of preventing putrefaction of boiled rice.

Food-specification

1. Field method of manufacturing food-stuff from resources the "South Eastern Asia"
 - a. Method of brewing "Sake"
 - b. Rapid Brewing of "Miso"
 - c. Manufacturing Vinegar
 - d. Manufacturing Pickles

Vitamin Supplying Food

1. Vitamin replenishing Food
2. Pursuit of natural resources of Vitamin B.
3. Prevention of oxidation of Vitamin C

Feeding of war horse and dog

1. Ripening drying of hay

IV. 1943 (Fiscal year)

Special Field Ration

1. Synthetic Ration
2. Food for prevention and restoration of ~~V~~atigue
3. Anti-Malarial Fever Food
4. Diminution of volume of Fields Ration

Vitamin Supplying Food

1. Vitamin Containing Rice

Method of preserving Food

1. Method of preventing putrefaction of accumulated provisions and fodder

Feeding of war horse and dog

1. Preparing Fodder by simplified field ensilage method

Packing

1. Lowering of packing standard
2. Field Machine to manufacture Battles

Water supplying instrument

1. Removing salt from Sea-water

V. 1944 (Fiscal year)

Food Specification

1. Method of liquid smoking
2. Manufacturing sugar syrup from white birch tree
3. Manufacturing millet jelly to serve as sugar

- Vitamin Supplying Food 1. Synthetizing method of Vitamin B₆
- Making Foodstuffs from unused natural resource 1. Making Foodstuffs from Nitrogen in the air
2. Locust, Chryslis etc. as food
- Storage and transportation of provisions and fodder 1. Diminution of volume of various provisions and fodder
2. Safety preservation of provisions and fodder against air raid
- Feeding of war horse and dog 1. Saw-dust as fodder
- Cooking utensils^e 1. Simplified folding cooking utensils
- VI. 1945 (Fiscal year)
- Measure to increase production of Foodstuffs 1. Plant-growing Hormon
2. Agricultural method to increase production of potatoes
3. Simplified method of salt manufacture
- Army Provisions supply and Nourishment 1. Lowering the standard of Army provisions supply.
2. Prevention of Disease caused by want of nourishment
- Storage and transportation of Provisions and Fodder 1. Method of preservation of potatoes
2. Utilization of putrefied potatoes
3. Preservation of provision in Sea water and method of transportation
4. Preservation of provisions in Soil care
- Making Foodstuffs from unused natural resource 1. Powdered Food
- Feeding of war horse and dog 1. Minimum Supply of Fodder for horse
2. Human Dury for feeding
- Simplified method of manufacturing agricultural implements 1. Method of manufacturing simple agricultural implements by utilizing scrap iron in war tricken lands

Establishment of Researches on Clothing

Name	Location	Owner	Particulars of Equipment	Number of Employee	Outline of Principal Researches
The Army Central Clothing Depot, Division of Research	Akabane-cho Oji-ku Tōkyō-to	Army	Instruments of experiment 716 Chemicals 3x73k Materials 500k	Officials 10 (Higher) -do- 12 (Minor)	Researches on tailoring, spinning and wearing of cotton and linen, dyeing and tanning hides; <i>u</i> particulars as shown in the following pages
The Army Central Weaving Depot, Division of Research	Minami-Senju Arakawa-ku Tōkyō-to	Army	Instruments of experiment 70 Chemicals 300k Materials Nil (Mostly lost by air-raid of 11th Mar. 45)	Officials 6 (Higher) -do- 4 (Minor)	Researches on spinning, weaving and dyeing of wool, silk and staple fibre; the particulars as shown in the following pages.

The Army Central Clothing Depot
Technical Data

1. Manufactured Articles

Subject of Research	Object of Research	Progress of Research
1. Ordinary Clothing	Research was made with a view to economical materials and promoting the capacity to manufacture on a large scale with higher efficiency and a war-time standard of clothes was established.	Some of the results obtained in regard to respective items were satisfactory and measures were taken to adopt them.
2. Clothing against Cold Weather	With a view to saving furs, light and warm clothing against cold weather was manufactured with flours-silk and Japanese paper, as trial and studied.	
3. Clothing against warm weather	Research was made on such patterns of clothings as to allow diffusion of inner heat. Laps, coats, pants, and under-wears were manufactured for trial	
4. Clothing for particular duties	Trial manufacture of clothings for those on particular duties such as tank and airplane operations was made, in order to save materials and promote efficiency	
5. Accountrements	Research was made to save materials and to promote efficiency in large scale production of knapsacks, haversacks, book, etc.	
6. Tents, Mosquito Net etc.	Research was made to save materials and to promote efficiency in large scale production of shelter tents, tents, mosquito-nets etc.	

2. Materials

1. Fibres	Utilization of artificial fibres and various kinds of wild grasses was studied, in order to make up for shortage of cotton, flax, hemp etc.	Some of the researches arrived at certain results, but for the most part the anticipated result is still far from being realized.
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2. Cotton & Linen Cloth Study was made on proper methods of spinning and weaving of various fibres, substituting for cotton flax, hemp etc. and substitute materials were obtained.

3

Dyeing and
water-
proofing

Study was made with a view to
utilizing vegetable colors, pigments and
other natural colors in substitution for
artificial colors.

In reference of water-proofing, saving
of materials and simplification of
process were studied.

4

Hides and
skins

As substitute for cow-hide, hides
and skins of other land and sea animals
were studied.

5

Tanning
stuff

As substitute for vegetable tanning
extracts, method of tanning was studied,
utilizing mineral tanning stuff, liquid
produced by dry-distillation of wood,
extracted solution from soil etc.

6

Metals

As substitute for brass used in making
buttons and aluminium used for canteen
and mess-tin, methods were studied to
manufacture them, to utilizing iron,
wood and porcelain.

7

Oil and
Grease

Studies were made on saving of
raw materials of leather oil, soap etc.
and also searching for substitute
materials.

The Army Weaving Depot

Technical Data

Subject of Research	Object of Research	Progress of Research
1. Dyestuff for Staple Fibre, soluble in Alkali	It is designed to make Sulphur Vat Dye soluble in Alkali and to dis- pense with Hydro Sulphide, thus facili- tating coloring of staple fibre.	It was confirmed as a result of analysis of Sulphur Vat Dye, that its soluble portion amounts to about 50%, which was to be used in coloring staple fibre. Experiments were being made, but was discontinued on account of war damage.
2. Improving the method of opening cocoon	The purpose of this research is to improve upon the method and equipment so as to minimize the falling- off of sericin and the growth of en- ter ^{an} ugle in manufac- turing silk lap by the method of opening coccons	Before any result was obtained, the research was discontinued on account of war damage.
3. Coloring, utilizing acetic acid	The purpose of this research is to utilize acetic acid, obtained as by-product of pine root turpentine oil, in dyeing animal fibres shari . <i>Khaki</i>	Experiment in laboratory using acetic acid gave a color of Van Dyke brown. There was probability of obtaining the designed color by mixing other dyestuff. The research was not completed on account of war damage.
4. Scouring of various fibres	To determine the best method of scouring various fibres, particularly rind of mulberry by means of natural fermentation, in respect of this products and yield.	While the research was still in the laboratory, war damage put an en to it.

Items of Researches pertaining to General supply

1. Name	Central General Supply Depot, Research Division	
2. Location	Kasuga-cho Koishigawa-ku Tōkyō-to	
3. Owner	The Central Army General Supply Depot.	
4. Establishment	Totally lost on 13th Apr. by air raid the Office is now in the Preparatory School Building of the Meiji University. Only clerical works are being done.	
5. Number of Persons	Officials (Higher)	9
	- " - (Junior)	8
	Others	15
	Total	32

6. Researches since 1940

This Division was inaugurated in April 1944. The particulars of researches made during more than a year past are shown in the attached list.

1944

Subject of research	Outline of Research
Folding Barracks	Study was made of a Barrack, which does not require iron and can be easily and speedily assembled by any unskilled hands. This is, named polygonal barrack
Concrete Oil Tank Wooden Oil Tank	Study was made of constructing wooden or concrete oil tank substituting for iron tank. Wall is made dupler to hold water in between. This was not put to practical use.
Substitute for Metal fittings etc. for building houses.	Researches to obtain substitute for metal fittings etc. used in building houses, made of wood and bamboo.
Substitute glass	Study to use paper as substitute of glass.
Anchor made of substitute material	Study was made of an anchor, made of ferro-concrete, instead of iron.
Water-proof Matches	Ordinary matches made moliture and water-proof by having the match-heads treated.
Water-proof Pencil	Obtained by making the pencil wood water-proof.
Water-proof Transporting Box	Study was made of a box for transportation made of paper and made water-proof.

Stuff for
temporary
repairs of
bullet holes

Study on paint to fill up bullet holes in house-
roof etc. utilizing coaltar and pitch

Substitute
for
Cement

Mixture of volcano ashes, air slaked earth and lime
showed strength similar to general purposes cement.

1945

Under ground
Factory

Books for reference concerning construction of underground equipments were collected and their outlines were compiled.

Study was made of the method of undergrounds construction, Ventilation and camouflage.

Measures to
restore houses
after war
damage

Study was made of building program of houses in the future on the war-stricken land
(by engineering Dept., Tokyo Imperial University)

Rear-Car

100% wooden rear-car.

Wooden Winch

Winch, made of almost wood only, capable of lifting 1 1/2 tons, was obtained.

Shovels,
Snout of fire-
hose, made of wood

Shovels, Snout of fire hose etc. made of wood only were obtained.

Simplified
sawing
machine

Simplified, movable sawing machine, driven by auto-tricycle (using saw dust as fuel)

Substitute
Rope made of
various fibres

In substitution for hemp, Wisteria vines, bamboo fibres etc. are used for making rope.

Establishments of Researches of
Veterinary science

September, 1945

Name	Subjects of Researches	Location	No. of Persons	Establishments
The Army Veterinary School	Treatment, prevention of epidemics, sanitation etc. of horse and other domestic animals	Kawatabi-mura Tamatsukuri-gun Miyagi Ken	62	Establishments for researches were destroyed by air raid in May, 1945. At present experiments are being made in a temporary shelter. As the apparatus of experiments were mostly lost, continuance of researches is attended with difficulties
The Central Army Veterinary Materials Depot	Veterinary instruments, medicines and other materials	Tachikawashi Tokyo-to	30	Researches are made in a simplified laboratory, built in troops' quarters
Kwantung Army Depot for Prevention of Epidemics of Horses	Prevention of epidemics	Shinkyō Tokubetsushi, Manchuria	32	Experiments were conducted in a laboratory, built in troops quarters. It is understood that the laboratory was mostly burnt down in August this year.

Remarks

The establishments mentioned in this list were not built for any specific researches. Researches have been made, keeping pace with the execution of tasks of the troops.

Program of researches since 1940
concerning veterinary science

Sept. 28th 1945

Items of researches to be accomplished soonest	Place of Researches	Establishment or army unit in charge
1) Method of treatment and precautionary measure against infections anamia of horses	Japan Proper and Manchuria	Army Veterinary School Kwantung Army
2) Method of manufacturing pulveriged serum	Japan Proper	Army Veterinary School
3) Method of Treatment and precautionary measure against Ostemalacia.	"	"
4) Transport of horses by ship in the tropics	"	Marine Army
5) Method of treatment and precautionary measure against Trypanosomiasen	Japan Proper South East-ern Asia	Army Veterinary School Southern Expeditionary Forces.
6) Utilization of substitute for horse-shoe.	"	Army Veterinary School Army Veterinary Material Depot Southern Expeditionary Forces
7) Bare Horses' hoof	Japan Proper and Manchuria	Army Veterinary School Kwantung Army
8) Method of treatment and precautionary measure against Pseudofarcy	China	China Expeditionary Forces
9) Utilization of substitute for veterinary <i>Instruments</i> all places	all places	All establishment and army units
10) Method of treatment and precautionary measure against glanders	Japan Proper and Manchuria	Army Veterinary School Kwantung Army
11) Substitute for Fodder	all places	All establishment and army units.