GHQ/SCAP Records (RG 331, National Archives and Records Service)

Description of contents

(1) Box no. 3063

(2) Folder title/number: (11)
Japanese Medical Supply

(3) Date: ? - Aug. 1947

(4) Subject:

Classification	Type of record
752, 9752	z

(5) Item description and comment:

Ehime

(6) Reproduction: (Yes) No

(7) Film no. Sheet no.

(Compiled by *National Diet Library*)

August 12, 1947

SUBJECT: Emergency Medical Supply

TO : Chief of Health Center

FROM : Chief of Ehime Ken Public Health Dept.

In view with many outbreaks of dysentery, the Prefectural Public Health Dept. decided to distribute sulfadiazine and sulfathiazole for the treatment of dysentery cases. It is desired that chiefs of health centers would cooperate with us in control of dysentery, and notify the private doctors of availability of sulfadiazine on the emergency occasion.

SUBJECT: Procedures as to how to obtain sulfadiazine on the emergency occasion.

Private doctors needing sulfadiazine must apply to the health center for the emergency medical supply, showing the detailed data as to the patients' clinical signs. Recall that it is imperative to submit the report on the outbreak of dysentery from private doctors to the health center on each occasion.

Health center chief will issue the certificate of the emergency medical supply on his judgement. Private doctors can get the medicine at the medicine supply shops designated by the Prefectural Health Dept. whereever they show the above certificate.

It is also imperative that private doctors submit the report on the patients given sulfadiazine in strict accordance with the form shown by the Prefectural Public Health Dept.

REPORT ON PATIENT GIVEN SULFADIAZINE

Doctor's Name _____

Patient's Name _____ Age ___

Date of report on outbreak : _____

Short medical history

D Date (1st day) (2nd day) . . . . . .

Dosage

Temperature
(Highest)

Frequency of
passage

Findings on
stools

Caution

1. This emergency medicine should be used only for dysentery patients.

2. It is the responsibility of Health Center Chief to exercise the close supervision over whether the medicine is used with justice or not.

3. It is imperative to send the monthly report from the medicine supply shops to the Prefectural Public Health Dept.

Press

(NANKAI-TIMES: June 13 1947)

SUBJECT: Penicillin Output Increases 50 Fold.

The penicillin industry in Japan is now going to enter into the stage of mass-production. Its output increased approximately fifty fold over last year. Production during April reached 265,050,000 units as compared to only 5,010,000 units in June last year.

The number of laboratories engaged in producing penicillin increased to 25 with participation of 3 more companies in this field of work in the latter part of last month.

The Toyo Rayon Company is now studying the installation of 200 litre tanks for carrying out mass production. It is believed that the nation's monthly production will attain the figure of 3-Billion units by the end of this year.

(NANKAI-TIMES: June 13 1947)

SUBJECT: Penicillin Output Increases 50 Fold.

The penicillin industry in Japan is now going to enter into the stage of mass-production. Its output increased approximately fifty fold over last year. Production during April reached 265,050,000 units as compared to only 5,010,000 units in June last year.

The number of laboratories engaged in producing penicillin increased to 25 with participation of 3 more companies in this field of work in the latter part of last month.

The Toyo Rayon Company is now studying the installation of 200 litre tanks for carrying out mass production. It is believed that the nation's monthly production will attain the figure of 3-Billion units by the end of this year.

(NANKAI-TIMES: June 13 1947)

SUBJECT: Penicillin Output Increases 50 Fold.

The penicillin industry in Japan is now going to enter into the stage of mass-production. Its output increased approximately fifty fold over last year. Production during April reached 265,050,000 units as compared to only 5,010,000 units in June last year.

The number of laboratories engaged in producing penicillin increased to 25 with participation of 3 more companies in this field of work in the latter part of last month.

The Toyo Rayon Company is now studying the installation of 200 litre tanks for carrying out mass production. It is believed that the nation's monthly production will attain the figure of 3-Billion units by the end of this year.

Medical Supply Production (19)

On the Effectiveness of "Tomi-Pepton" to the Culture of Various Kinds of Bacteria

TOMIYAMA Tetsuo
Professor of Chemistry of Fishery Product
At the Faculty of Agriculture of
Kyushu University

I. INTRODUCTION

It has intensively been studied during the time of War II to prepare the culture media for bacteria by the use of fishes as its material. Success was finally made in getting a mixture of pepton and amino acids by subjecting fishes to autolysis under a certain condition. It has been found that this specific preparation, named as "Tomi-Pepton" is very rich in ingredients promoting the growth of bacteria. It is quite a striking fact that just a single solution of "Tomi-pepton" without adding anything else is very effective to culturing diphtheria baccillus and hemolytic bacteria which are not able to grow on the ordinary culture media. It is further being noticed that the formation of penicillin increases in appreciable amount when penicillium No.233 be cultured with "Tomi-pepton" in contrast to the ususal commercial pepton.

The present paper deals with the general description of "Tomi-pepton" and with its effectiveness to the growth of numerous bacteria. This work has been carried out with the cooperation of bacteriological laboratory at Faculty of Medicine of Kyushu University.

II. General Decription of "Tomi-pepton"

The "Tomi-pepton" can be obtained by subjecting fish as a whole to the autolysis at an appropriate acidity and temperature. The powdered preparation contains in average 5% moisture, 12% nitrogen, and 9% ash. It is mainly composed of pepton and amino acids. The forms of nitrogen are as following.

	%
Protein- and Metaprotein- N	1.9
Proteose- N	11.8
Pepton -N	20.4
Subpepton -N	26.0
Amino Acids -N	39.9

III. Results of Growth of Bacteria on "Tomi-pepton"

1. Culture Media:
   a) 2% "Tomi-pepton"
   b) 1% extractives of bonito + 1% "Teruuchi-pepton".
   c) 1% Liebig meat extract and 1% "Teruuchi-pepton".
2. Species of Bacteria used for the Test:
   1) B. coli communis
   2) Staphyl. pyogenes aureus
   3) B. proteus vulgaris
   4) B. subtilis
   5) B. pyocyaneus
   6) Wasservibrio commae
   7) B. paratyphi A
   8) B. paratyphi B
   9) B. typhi
   10) B. dysenteriae Shiga
   11) Coryn. diphtheriae
   12) Streptococcus hemolyticus

A. Followings are the results of the growth on liquid media:

Species of bacteria

A. Followings are the results of the growth on liquid media:

Species of Bacteria	Kinds of Culture media	Turbidity	Indol reaction Kitasato Salkowski	Indol reaction Pringsheim
B. coli	a)	++	±	+
	b)	+	—	+
	c)	+	—	+
Staphyl. aureus	a)	+	—	—
	b)	+	—	+
	c)	+	—	+
B. proteus	a)	+	—	+
	b)	+	—	+
	c)	+	—	+
B. subtilis	a)	+	—	—
	b)	+	—	—
	c)	+	—	—
B. pyocyaneus	a)	+	—	—
	b)	+	—	—
	c)	+	—	—
B. pyo- Coryn. diphtheriae	a)	++		
	b)	—		
	c)	—		

It has been noticed that B. pyocyaneus cultured on "Tomi-pepton" forms pyocyanin in a remarkable quantity not comparable to the control media. When cultured on "Tomi-pepton", indol reaction was much more distinct compared to the other media due to the pale coloration and high tryptophane-content of "Tomi-pepton".

B. Followings are the results of growth of bacteria at 37° and 24 hrs-period on agar-plate culture media.

Species of bacteria	Kinds of culture media	Density of Growth	Largeness of colonie	Thickness of colonie	Order of Superiority
Wasser-vibris commae	a)	++	+++	no differ-ence	1
	b)	+	+		3
	c)	+	++		2
B. paraty-phi A	a)	+++	+++	No differ-ence	1
	b)	+	+		3
	c)	++	++		2
B. paraty-phi B	a)	+++	++	+++	1
	b)	+	+	+	3
	c)	++	++	++	2
B. typhi	a)	+++	++	+++	1
	b)	+	+	++	2
	c)	+	++	+	3

B. dysentheriae	a)	++	++	No difference	1
	b)	++	±		3
	c)	++	++		2

It is to be pointed out that egg white is ordinarily needed to clarify the agar media while "Tomi-pepton" can be used without such process of clarification.

C. Detection of vibrio commae

When 5 cc of 2% "Tomi-pepton" are innoculated with Vibrio commae in so tiny amount as 1/100,000 of a platinum-loopful quantity of the bacteria, distinct turbidity and cholera-rose reaction appeared after 5-6 hrs' incubation. However, in the control experiment using Liebig meat extract, the reaction was positive only after 24 hrs' incubation. Thus, it will eventually be an outstanding contribution to the prevention of infectious cholera-disease that "Tomi-pepton" is certainly able to facilitate the early detection of Vibrio commae.

D. The culture of certain pathogenic bacteria:

(1) The culture of Coryn. diphtheriae.

The rate of growth of Coryn. diphtheriae is two to three times better on "Tomi-pepton" than on "Löffler's" or "Martin's" media specific for this bacteria. The following points are worthy to be mentioned.

a) The 24 hrs' incubation after innoculation to 2% Tomi-pepton is enough to obtain a fairly good formation of membrane on the liquid media.

b) The positive activity of formotoxoid formed by innoculation in 2% Tomi-pepton was clearly observed in dilution of 1/100,000, and doubtful activity in dilution of 1/200,000.

c) The voltin of this bacteria grown on Tomi-pepton can clearly be observed without fail after staining. Therefore, it will be quite feasible by the use of Tomi-pepton to identify Coryn. diphtheriae and to efficiently manufacture the formotoxoid.

(2) The culture of hemolytic streptococcus

It is striking that this bacteria which is only capable to grow on blood-agar medium can grow quite normally on a simple 2% solution of "Tomi-pepton".

(3)

(3) The culture of Mycobacterium tuberculosis:

A good result was noticed when monosodium glutaminate of "Oka)Katakura" medium be replaced with "Tomi-pepton".

LV SUMMARY

1. Tomi-pepton medium is far superior to the usual one in culturing various kinds of bacteria judging from the magnitude of their colonies on agar-plate and turbidity of liquid culture media.

2. The formation of pyocyanin by B. pyocyaneus cultured on Tomipepton was very rapid and remarkable.

3. Indol reaction on the Tomi-pepton medium innoculated by B. coli, Staphyl. aureus, and B. proteuss was marked and can easily be detected due to the pale coloration of "Tomi-pepton".

4. The liquid medium of "Tomi-pepton" gives easily perceptible positive cholera rose reaction at 3-6 hrs' period after innoculation of Vibrio commae in quantity of 1/100,000 of loopful bacteria.

5. The Tomi-pepton can be used with good result instead of menosodium glutaminate in the culture of Mycobacterium tuberculosis.

6. Coryn. diphtheria can grown on a simple 2% solution of Tomi-pepton with two to three times better growth compared to Löffler's or Martin's culture media. The voltin of the bacillus grown on Tomi-pepton can be identified without fail on standing.

7 The followings may be pointed out as outstanding characteristics of Tomi-pepton in practical use.

a) It is feasible to detect the turbidity, the formation of pigment and the chemical test of the metabolic product of bacteria due to the pale coloration of the media.

b) A simple 2% solution of Tomi-pepton can be used for the culture of bacteria without the addition of extractives and sodium chloride.

c) A simple filtration is suffice to clarify the media, and no turbid matter forms on the sterilization.

A STUDY ON THE PREPARATION OF AN IDEAL SUBSTITUTE FOR MOTHER's MILK

T. Tomiyama: Prof. of Chemistry of Fishery Products at Faculty of Agriculture, Kyushu University.
T. Sugihara: Formerly Lecturer at Faculty of Agriculture, Kyushu University.
M. Enjoji: Prof. of Pediatrics at Faculty of Medicine, Kyushu University.
I. Chin: Director of Infant's Hospital at Faculty of Medicine, Kyushu University.
K. Ando: Research-fellow in Infant's Hospital at Faculty of Medicine, Kyushu University.

Due to a lack of milk and milk product, it is now very difficult to maintain the nutrition of sucklings normal. Without using milk or milk product, never success has been made in preparing an ideal substitute for mother's milk. So it is a great desire to prepare in a large quantity an ideal substitute by making use of foodstuffs other than milk. An attempt has been made to prepare an ideal substitute by adopting certain foods or food components which are rather abundant in Japan.

The present paper deals with a success in preparing without milk a real substitute, the nutritional value of which has been determined on albino rat as well as sucklings. In this paper, the present preparation of the substitute may simply be called "Nutron".

I. Materials and Method of Preparation, and Chemical Composition of "Nutron"

1. Materials

	Grams		% components to be used
Wheat flour	1000		80
Pepton prepared from fish	100		8
Vegetable oil and butter	75		6
Liver oil of high vitamin	2	capsule --	(10,000 I.U.)
Yeast	50		4
Calcium lactate 7 and sodium chloride 10	17		1.4

2. Method of Preparation : Wheat flour, vegetable oil, butter, liver oil and yeast are well mixed with a suitable quantity of warm water. The mixture, after standing several hours, is steamed or baked, then dried, and further pulverized. To this powder an adequate amount of powdered pepton is intimately admixed, giving the substitute "nutron" in powder form.

The above processes aim at emulsifying oil and dextrinizing wheat four. Thus "nutron" is entirely composed of easily digestible nutrients, i.e., pepton, oil-emulsion, and dextrin.

3. Chemical Analysis of " Nutron " : A chemical analysis gives 4.2% moisture, 14.0% protein, 5.8% fat, 3.7% ash, 62.3% carbohydrate.

II. Nutritional Value of " Nutron "

A. Feeding Experiments on Albino Rats.

Albino rats (same litter) raised by "nutron" showed quite regular and excellent growth (Fig. 1). Up to 150 g in body weight, average increase amounted to 2.7-3.4 g per day at 20% protein level and 2.3-2.8 g per day at 14% protein level.

The digestibility of total solid has been determined during nine days. The results are shown in table 1. The average value for digestibility has been found to be 93.0%.

B. Nursing Experiments on Sucklings.

Several preliminary preparations of "nutron" were tested on six sucklings from Nov. 1944 to May 1945. The experiment was not able to carry out long enough to get a clearcut results owing to the fact that difficulty was experienced in drying process and further it was hard to get materials for preparing "nutron" due to the food-crisis. Here description will only be made of the experiments on two sucklings nursed for two months with "nutron" in powder form.

One suckling A is male and five months old. His nutriment, powdered milk, was gradually replaced during 10 days with "nutron". The other suckling B is male and three months old. He had been nursed exclusively with mother's milk which was replaced during 3 days with "nutron".

The kinds of nutriment, amount of the nutriment ingested, body weight and number of excretion of feces are given in table 2. The following points need to be mentioned. 1) Appetite: the suckling A seemed to like to drink "nutron" even without sugar. In suckling B no difficulty was experimnced in replacing mother's milk with "nutron" within three days. The appetite for "nutron" has been observed throughout the experiment to be very good except when suckling B was suffered from the epidemic influenza. 2) Feces: quite normal except slight diarrhea when suffered from the epidemic influenza. 3) Skin: normal. 4) Growth: normal (Fig. 2).

The digestibility and nitrogen balance of the nitrogenous constituent have been determined. The results are given in table 3. It will be seen that the nitrogenous constituent of "nutron" was as much utilized as that in mother's milk. In suckling B, the protein-content in serum has been found to be normal.

As to the resistance to infection, it must be mentioned that the suckling B was infected by influenza which was just prevalent in the infants' hospital. However no particular week resistance has been noticed in two sucklings under examination compared to the other ones in the hospital.

III. Summary

Without using any milk or milk product, no ideal substitute for mother's milk has yet been prepared. It can be emphasized that as an ideal substitute for mother's milk the present preparation "nutron" may be the first one so far as is now known.

The characteristics of "nutron" can be pointed out as follows. 1) The materials for "nutron" especially fish and wheat are common, rather abundant, and cheap resources in Japan. 2) All the components are changed into easily digestible form, i.e., pepton, oil-emulsion, and dextrin. 3) "Nutron" may have many points which meet the taste of sucklings, since they like to drink it even without sugar. 4) The nutritive value of "nutron" has been ascertained to be complete by feeding albino rats as well as nursing several sucklings.

The experiments have shown that by the use of "nutron" it is no longer difficult to keep normal the nutrition of sucklings few months old even without having any milk or its product. It is eagerly hoped that many sucklings will soon be rescued from their malnutrition by the abundant supply of "nutron".

Addendum: Quite recently a nursing trial is being made to start to give "nutron" to a baby immediately after birth without giving mother's milk at all. The response to "nutron" is coming out excellent. This will be reported later on.

Table 1 Digestibility of "nutron"

	Date: April / No. of rat	12	13	14	15	16	17	18	19	20
"nutron" ingested	No.15	14.4	15.4	16.3	16.0	18.3	17.0	17.2	18.1	18.1
	No.35	14.1	15.1	16.0	16.9	15.9	16.2	18.2	17.5	18.8
	No.20	14.1	15.1	16.0	13.1	14.7	14.2	15.3	16.3	17.5
Feces excreted	No.15	1.0	1.0	1.0	1.3	1.3	1.3	1.3	1.3	1.2
	No.35	1.2	1.1	0.7	1.3	1.0	1.3	1.5	1.3	0.9
	No.20	1.3	1.1	1.1	1.4	1.0	1.1	1.3	0.9	0.9
Digestibility	No.15	93.0	93.5	93.7	92.0	92.8	92.5	92.5	92.8	93.3
	No.35	91.5	92.8	95.1	92.3	93.7	92.2	91.7	92.6	95.1
	No.20	91.0	92.8	93.0	89.5	93.3	92.5	91.5	94.5	94.5

Table 2 Growth of Sucklings

No. of suck-ling	Kinds of nutri-ment	Days after birth	Period of Expt. (day)	Increase in body wt. total	Increase in body wt. per day	Increase in body length (cm/month)	Calorie per day total	Calorie per day per Kg.	average no. of excretion of feces per day
A	Milk powder	121	30	310	10.5	1.5	634-644	114-127	1.2
	"Nutron"	153	73	880	12.1	1.5	510-805	103-143	1.4
B	Mother's milk	80	.5	150	30.0	--	700-826	109-131	2.0
	"Nutron"	85	73	1300	17.8	1.5	332-979	48-140	2.2

Table 3 Digestibility and Nitrogen Balance of Nitrogenous Constituent in " Nutron "

	Age in month	Date of test	Kind of Nutri-ment	N inges-ted (g)	N out-put in feces	N out-put in urine	N absor-bed (g)	N diges-tibility (%)	N depo-sited (g)	N deposited in % of ingested
♂A	5	27, 28 Jan.	Milk powder	4.99	0.69	2.28	4.30	86.1	2.02	40.4
	6	27, 28 Feb.	Nutron	4.89	0.92	1.28	3.97	81.2	2.69	55.0
	7	19, 20 Mar.	Nutron	3.84	0.36	1.24	3.48	90.7	2.24	58.3
♂B	3	30, 31 Jan.	Mother's Milk	2.16	0.41	0.39	1.75	81.0	1.36	62.9
	4	11, 12 Feb.	Nutron	3.98	1.06	1.22	2.92	73.4	1.70	42.7
	5	21, 22 Mar.	Nutron	3.84	0.67	1.54	3.17	82.7	1.63	42.4
Control ♂	I 4	22 Jan.	Milk	4.90	0.34	2.72	4.56	93.1	1.84	37.6
♀	II 6	26 Jan.	Milk & lactose	4.90	0.28	2.28	4.62	94.3	2.34	47.8
♂	III 7	13, 14 Feb.	Milk & cereal	2.48	0.30	1.08	2.18	87.8	1.10	44.3
♀	IV 6	15, 16 Feb.	Milk & cereal	2.48	0.25	0.85	2.23	90.0	1.38	55.7
♂	V 9	9, 10 Feb.	Special food for infant (Eiji-shoku)	4.32	2.58	1.23	1.74	40.3	0.51	11.8

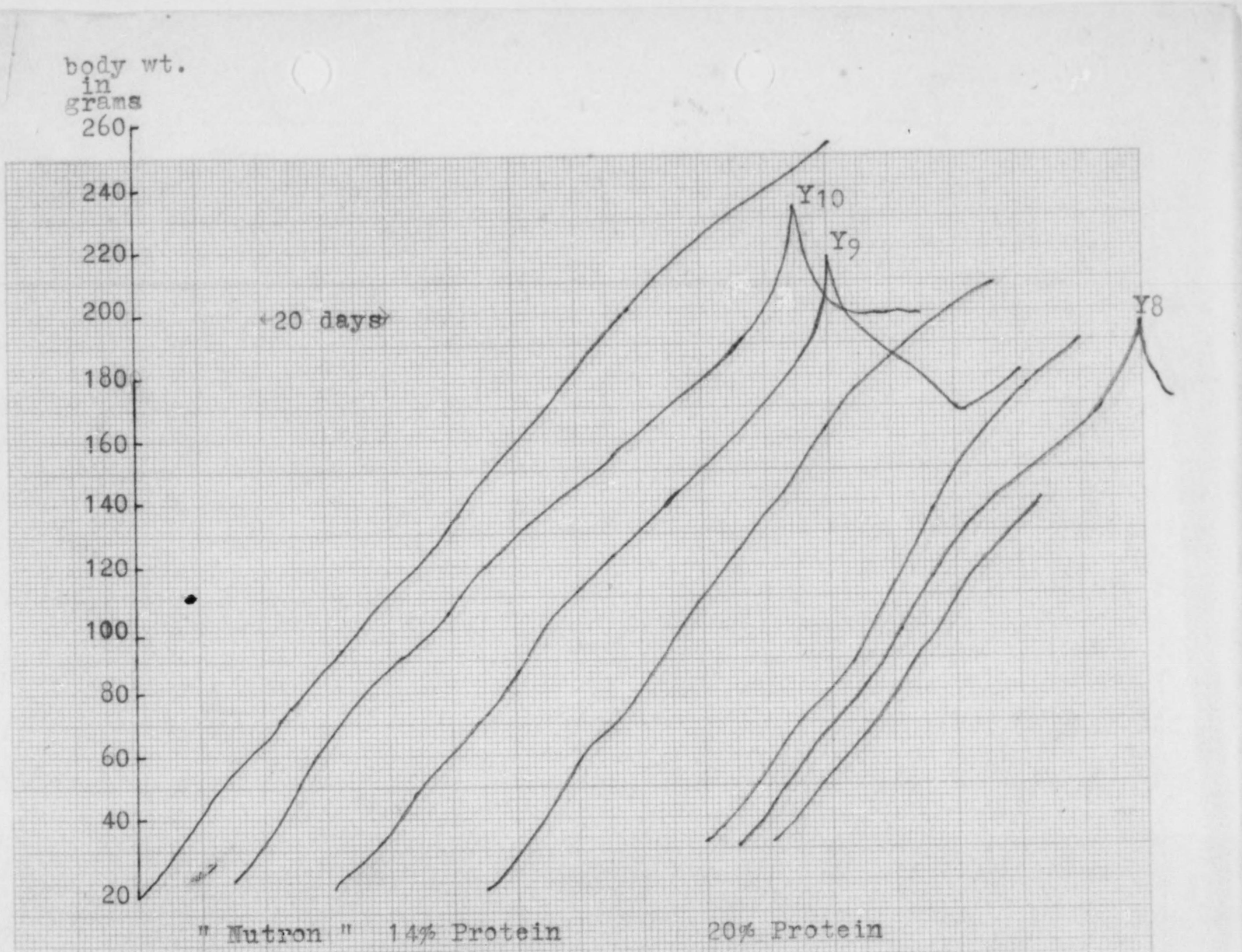


Figure 1 Growth of Albino Rats

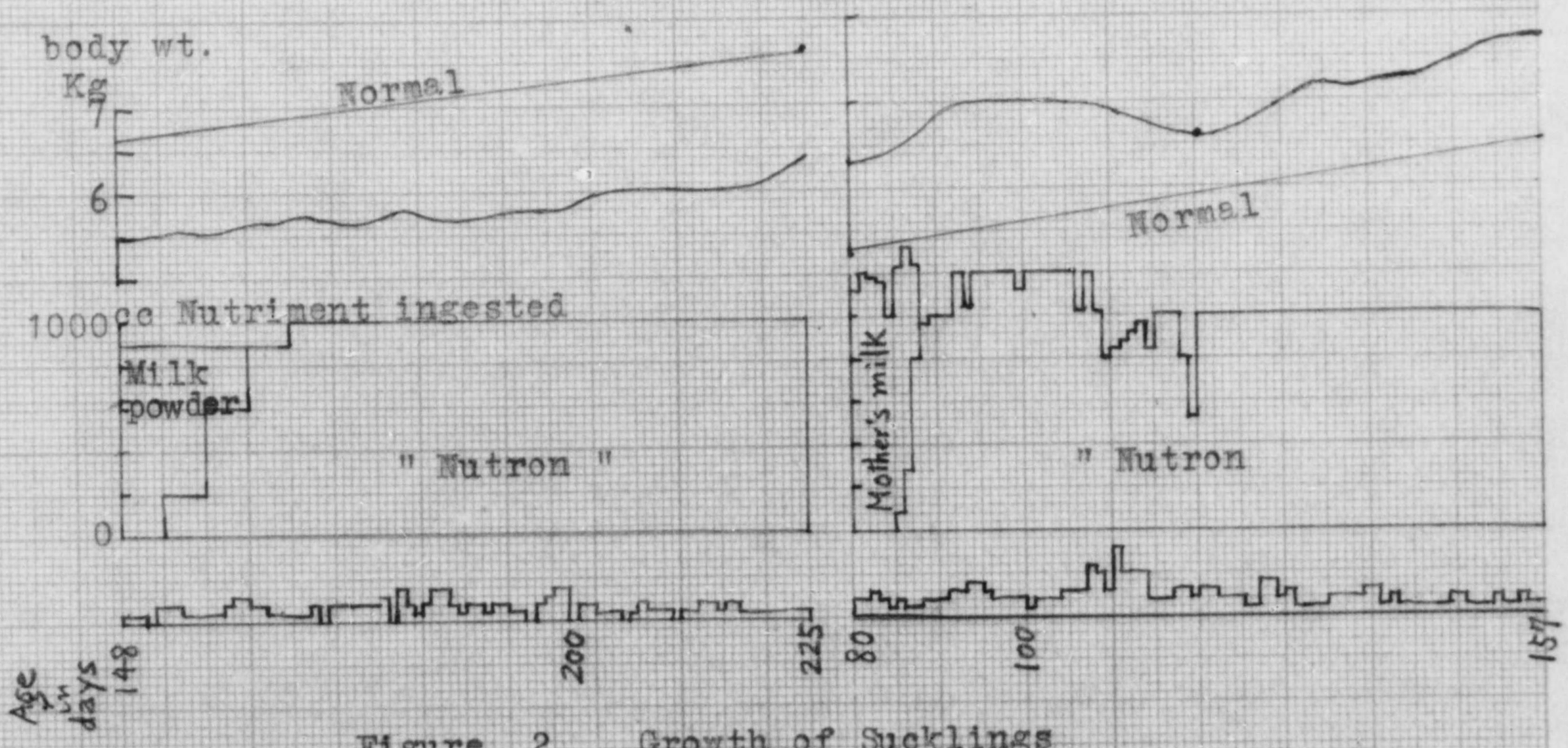


Figure 2 Growth of Sucklings

Materials required for the Preparation of "Nutron"

Average quantity of "Nutron" per Infant, per Day 160 g
" " " per 1,000 Infants, per Day 160 Kg
" " " per 1,000 Infants, per Month 4,800 Kg

Materials	Monthly Need
Wheat flour	3,200 Kg
Sugar	800 "
Vegetable Oil	200 "
Butter	100 "
"Tomi-Pepton"	680
Yeast	120
Calcium carbonate	28
Vitamin A and D (Vitamin oil concentrate)	2

2000 babies more on Nutrion -
to last 3 mos.

Nutrom 70 Cal per 100 gm -
Pepton 300 Cal per 100 gm -

Sardines - fresh -

- 6 to 8 weeks -
2 months

PENICILLIN

ITS

PRODUCTION AND RESEARCH

NIIHAMA WORKS

NISSIN CHEMICAL CO.,LTD.

Penicillin production program and outline of research projects performed of the Nihama Works, Nissin Chemical Co.

January 1947

A. Introduction :

Preliminary research work of penicillin preparation was commenced on February 1944 and substantial work by March of 1946.

(1) On 15 August 1946, joined the Penicillin Comittee established under the sponsership of Major Jordan and other GHQ officials.

(2) On 15 to 17 of December we had the honour of attending Dr. Foster's lecture, subject "Penicillin production in the United States", taking place at the Welfare Ministry. Proffessor's lecture may be summed up to the following meaning: "It required three years for the United States to succeed on the submerge culture method. And I think, for this method to be available in Japan at least three years is necessary. The production of penicillin of this country up to October 1946 averages only 22,500,000 units per month while the amount required to treat only serious tuberculosis cases calls for 2,100,000,000 units per month in average. (According to the statistics announced by the Welfare Ministry.) Drastic steps must be taken in order to meet this demand and make way for the large-scale production in the least time possible. Consequently the aim of GHQ and the Japanese Welfare Ministry is to encourage the rapid increase of output of penicillin by the surface culture method and on the other side [redacted] to cooperate willingly to the utmost in the line of research and technical mastering by the submerge culture method." In addition, the Japanese Welfare Ministry has deceided in order to obtain permission for penicillin production, it is required that the factory must have a capacity of over 500 L/day (60,000,000 to 12,000,000 units)

(3) On 9th December 1946, in room No.610 of the Public Welfare Section of GHQ a conference concerning penicillin production was assembled. The attending members :

GHQ Prof. Dr. Foster
Colonel Willow
Major Sprague and others

Japanese side
Commerce and Industry Ministry
Welfare Ministry
Chemicals Controlling Association
Representatives of the principal chemical companies invited by GHQ.

Our Nissin Chemical Co.,Ltd. was bestowed with the honour of the invitation. The summary of the speeches of Prof. Dr. Foster, Major Sprague and others were to the following meaning :

Dr. Foster : The penicillin necessary for this country must be self supplied. The United States will not supply Japan with it, but there will be no bounds as to technical and other assistances necessary. Dr. Foster will be responsible for the technical advises and Major Sprague will assist in the field of raw materials, fund and legal advices.

Large scale production by the surface culture method is impossible, and consequently it must be substituted by the submerge culture method. Production by this latter method is of a nature that it can be rightly named as a heavy chemical industry, hence it is not a task to be tackled by various small companies as is the current situation in this country. This is the reason of our inviting by name today, the 10 and over leading chemical companies of this count: I ask for the immediate decision of each company whether they will take up this job. And to those companies that have decided to adopt the submerge culture method, utmost assistance by GHQ in all

fields may be promised.

(2) Major Sprague : Without the efforts of large companies, the success of penicillin industry is impossible. If, in order to shift to large scale production by the submerge culture method, exemption from reparation, mollification of the anti-trust law and other effecting items are necessary, I will do my best to help you on the way. If you may have difficulties in obtaining funds because of being a restricted concern, you will be assisted. If you have any other troubles, please consult Major Sprague. If there is any raw material inavailable in this country I will prepare and have it delivered to Japan. It has already been arranged in the States to supply you with amylacetate.

(4) On the 19th of December 1946, in response to the order of GHQ, a meeting was held under the sponsership of the Commerce and Industry Ministry, in the conference rooms of the Chemicals Association. And at that occassion each company was demanded to announce its attitude towards its resolution of taking up the production in response to the signification of the meeting of 9 December.

Our Nissin Chemical Co.,Ltd., gave the following answer : In the near future substantial production by the surface culture method will take place. Concerning the penicillin production by the submerge culture method, research work and preparation for pilot plant experiment is being carried out.

B. Penicillin production program

Alongside with the commencement of work on pilot plant and actual production by the surface culture method, investigations will be started on the research and pilot plant experiments utilising the submerge culture method.

Detailed explanation of the plan :

1) Operation method :

Please refer to attached flowsheet diagram.

2) Capacity :

In the first stage the capacity is to be 50 L/day (i.e. from 200 to 250 of one liter Erlenmeyer flasks will be used per day.) which will further be expanded to 100 L/day.

3) Construction plan of the pilot plant :

Location : A part of the former (5 T/month) synthetic rubber plant will be used. By its selection within this factory, it was contemplated as most suitable for carrying out the production and research work owing to its isolated position on the farther end of the island, thus decreasing the possibilities of being effected by the dirty air.

Degree of progress of the construction : (up to present)

Buildings	:	ca. 70 % completed
Machinery Erection	:	under making
	:	not yet started

Estimate as to date of its completion :

The former schedule dated it as March, but owing to the time required for the application for the release of the reparation buildings to be approved, the completion will be behind time.

4) Facilities :

Please turn to chart No.1.

(The rooms are numbered in compliance with chart No.1.)

(1) Preparation room :

12.6m X 20m Area 252 ~~cubic~~ square m.

Accomodated with facilities for washing bottles, preparation of culture media and sterilizing. (Either by steam or by heat.)

(As this pilot plant was projected for a short term, the whole process is to be manipulated by hand.)

(2) Inoculation room :

3m X 5m Area 15 ~~cubic~~ square m.

The walls will coated witha layer of concrete and in o order to maintain cleanliness, facilities for frequent washing will be installed.

Sterilized culture media bottles (one liter Erlenmeyer flasks) will enter from one window and after being inoculated will be passed out from another window.

(2) Culture room :

4.5m X 12.1m Area 54.5 ~~cubic~~ square m.

Ceiling and the side walls will be made thermoinsulated by filling with saw-dust. In the interior, shelves will be attached capable of holding 3,500 culture bottles at a time.

In order to maintain the room temperature at a constan 23 degree Centigrad§ in summer, air is cooled by cold brine solution and in winter warm air heated by steam will be blown in. It will be connected by different windows with the culture and assay rooms respectively.

(4) Assay room :

4m X 5m Area 20 ~~cubi~~ square m.

(5) Machine room :

4.5m X 12.6m Area 56.7 square m.

The following machineries will be installed :

(") Refrigerator	200HP	200,00 KCal/hr	1 set
Air heater & cooler (Under construction)			1
Blower	3 HP	60 m^2/min	2
(") Transformer	3 phase	150 Kva	1
(") " "	1 phase	20 Kva	1
(") Switch board			1

Remarks: The items with the mark (") are listed in the inventory as reparation objects.

(6) Electric boiler room : (Pump room attached)

8m X 10.6m Area 74 square m.

To be newly constructed on the east side of the former synthetic rubber plant building, and following equipments will be installed :

Electric boiler	250KW	1	under making
Transformer	600KVA	1	
Pump (Water)	5HP	1	
Heatexchanger		1	

The steam for the whole process will be supplied from here.

(7) Refining room :

8m X 14.4m Area 115 square m.

(The former butadiene storage room will be used.)

a) Normal temperature room	8m X 8m	64 m^2
b) Low temperature room		36
c) Refrigerating room		6

a) Normal temperature room : The process of filtration of the culture medium, adsorption by active carbon, extraction by aceton and evaporation of aceton,

will be carried out in this room.

This room will be equipted identical with ordinary laboratories, and absorption and extraction tanks with cooling jackets are to be installed.

b) Low temperature room :

The room temperature must be constantly maintained under 10 degree Centigrad. The process to be performed in this room ; The aqueous solution from which aceton is removed by evaporation, is extracted with either ether or amylacetate. And this is further treated with a buffer solution to extract the product. And lastly this is dried under refrigerated condition and made into a finished product. By consideration of manipulation efficiency and in order to maintain most suitable conditions the room is thermo-insulated by installing double walls filled with saw-dust and temperature regulated air is supplied. Brine tanks of minus 5 and minus 50 degree Centrigrade are installed, the former for the general cooling and latter for use for trap on the process of drying by refrigerating.

c) Refrigerating room :

Its use for refigerating raw materials for culture mediums, such as; yeast, worked fishery products, penicillin intermediate refined solutions and storage of the finished products.

It will be thermo-insulated by double walls, filled by saw-dust. The room temperature will be maintained at 0 - 50 degree Centigrade.

5) List of principal machineries.

Item	Size & Capacity		Unit	Purpose
1. Dry heat sterilizer	1.5mX1.5mX1.4mH	box-type	1	coal-gas heated
2. Steam sterilizer	1.5mØX1.8mL	horizontal-cylinder	1	
3. Air heating & cooling appat.	1mX1mHX0.6m	tube-type	1	heating and cooling culture room
4. Refrigerator	200,000KCal/hr	200HP	1 (")	for refrigerating refrigerator room, culture room & refining room etc.
5. Air cooler	1.0mX1.0mHX1.4m	tube type	1	for cooling the refining room.
6. Blower	3HP 60m^3/min.	30cm/mH_2O	2	for refrigerating.
7. Pipe (air)	310 X 360		40m	" " "
8. Electric boiler	250KW horizontal volume of boiler 1.2mØX3m		1	
9. Plunger pump	3"Ø 5HP		1	for supplying water to boiler.
10. Heat exchanger	0.6mØX1.0mH	multi-tube type	1	for boiler blow water.
11. Compressor	oil compressor volume 0.7L		1	for pressing and filtering mold.
12. Stirrer	½HP 1,000Y.L.M.		3	for culture media & penicillin refining.
13. Vacuum pump	½HP Gaede type 0.002mmHg exhaust 80L/min		2	for penicillin refining.
14. Diffusion pump.(oil)	10^{-6}mmHg		1	for penicillin drying.
15. Brine tank	0.6mX0.6mX1.2m		1	" "
16. " "	0.4mX0.4MX1.2m		1	" "
17. Continuous centrifugal separator	½HP capcity 300-500L/hr		2	for preparing culture media & penicillin refining.
18. Transformer	3 phase 150KVA primary 33,000V secondary 220V		1 (")	
19. "	1 pase 20KVA 2ndary 110V		1 (")	

List of principal machineries.(Continued)

Item	Size & capacity	Unit	Purpose
20. Stwich board		1 (")	
21. Pipings		1 set	for water, coal gas, steam and brine.

REMARKS: Items marked with (") are those designated for the reparation purposes as part of the machineries of the synthetic rubber plant, and for its release an application was submitted to GHQ on 30 January 1947.

6)Estimates of research period and amonts of test products to be produced.

Research period : From March 1947 to December 1947.
(This date will undergo a little modification owing to the suspension of the construction of the plant ordered by the Military Government.)

Amount of test products : Products are expected to be turned out from July.
1,200,000 - 2,400,000 unit/day

7) Technicians and laborers.

Technicians : 8

Laboratory assistants : 15

8) Materials.

a) Yeast : This item will be self supplied. At present, we have a producing capacity of 5 Kg per day, which will be increased to 60 - 300 Kg per day after completion of the new yeast plant now under way.

b) Glucose : A part will be self supplied and the residue we must rely on the supply from the outside.
We are accomodated with a facility for producing 200 Kg per day and are prepared with plans for its further expansion, and at present are encountering difficulties in securing methanol for refining yeast. Sufficient amount for carrying out the pilot plant research work are in our hands, but in order to carry out the pilot plant research work by the submersion method, yeast must be supplied from the outside.

c)Raw materials for yeast production: In order to beg the distribution of dried sweet potato and rice-bran,

an application was submitted to the Ehime prefectural office.

d) Aceton : A considerable amount is in stock.

e) Amylacetate, phenylacetic acid and active carbon :
Concerning these items we are expecting their supply thro the Penicillin Association. (The former two items are to imported by the generous favor of GHQ.)

f) Worked fishery products : In the case of large-scale production, we are planning to mix it with yeast. At present the amount available is under investigation.

9) Molds to be used :
Shared from GHQ : No. 1978 B.2. and No.1249 B.21
Japanese molds : G.I., No.233 and No.176.

10) Influence of removal of machineries and buildings for reparation purposes : Concerning the buildings; The plant was planned to be installed in the former synthetic rubber plant by the conversion of a part of its building facilities. Work is being continued after being withheld for 28 days required for obtaining the approval of the Military Government to use these items for penicillin production.

Concerning the machineries of the former synthetic rubber plant: Machineries , which we beg the release from reparation inventories are as following;

Equipments :

1) Refrigerator	200HP 200,000KCal/hr		1 set
2) Transformer	150KVA	3 phase	1
3) " "	20KVA	1 phase	1
4) Switch board			1

B. Program (Estimate) of production in large-scale by the submersion surface culture method.

I) Capacity : 500 L/day by the surface culture method.
(shheduled to shift to the submerge method on the completion of its research work.)

2) Commencement of production : Undecceided.

3) Details of the plan : This producing capacity is to be attained by the expansion or further additional construction of the 50L/day pilot plant experimenting facilities in the former synthetic rubber plant. We are of the estimate that the refining room and the refrigerator will requise no further addition.

a) (The numbers of the following list is idential of those inscribed in chart No.2)

1) Preparation room : This will be expanded as desribed in the chart. Facilities for washing bottles, preparing culture media and sterilizing will be newly installed.

2) Inoculation room

3) Culture room Scheduled to be newly installed

4) Assay room within the synthetic rubber plant.

5) Filtrating room : To be newly installed on the west-side of the building.

6) & 7) Machinery room : 6) is to be expanded to 7). Air cooling and heating apparatus and 2 blowers of 3 HP are to be newly installed.

8) Electric boiler room : Does not require expansion. 1 boiler of 250 KW capacity will be newly installed.

11) Storage room for raw materials :

4) Relations with reparation : As the expansion will be limited to building facilities in this stage, we hope that there will no trouble about it as we have obtained the approval of the Military Government to use the 3 buildings of the 5 T/month plant.

C. Plan of the pilot plant research work by the submersion method.

As a primary stage plans have been projected to the capacity of 2 to 8 culture tanks of a volume about 500 liters. We are of the expectation that we might be honoured by the personal instructions of Prof. Foster of GHQ.

D. Plan of production in large-scale by the submersion method.

As this thema is under investigation, it has not developed into a definite plan at present.

Estimates are that at least a few tanks of 50,000 - 100,000 liter capacity must be installed.

Outline of the research work concerning penicillin performed in the Nissin chemical co.,Ltd, Nihama Ehime-ken.

A) Research work of penicillin and penicillin analogous substances.:

Work performed on various penicillin molds of its anti-bacterial strengh has rewarded us with two or three strains of practical worth. No investigations have been undertaken on its bacteriological properties.

In order to discover microbes with the ability to produce substances effective against bacillus undestroyed by penicillin, work was devoted in the direction of isolating Actinomyses mold and testing its antibacterial potency. Succeded in obtaining a few strains of antibacterial potency against bacillus coli, the exact potency of which is yet to be assayed.

B) Research concerning culture media :

Work is being carried out with aims to improve the culture conditions. We have obtained positive proofs that starch, raw sweet potato, raw Irish potato and unrefined glucose can be used as carbonaceous source. And as nitrogeneous source; yeast, fish flesh and entrails , may be utilized. Morever, as it was clarifyed that autolysate solution made be utilized as material, work is being performed on finding the most suitable condition for its development.

C) Research on the refining method. :

Arrangements of the facilities are being carried out at present on the line of the following process; absorption by active carbon, extraction by aceton, and extraction from the aqueous solution, after the removal of aceton, with ether.

Scheduled to be completed in the near future.

D) Investigations on large-scale production :

In order to set out on the preliminary experiment by the submersion method, a shaker was designed and is now under construction.

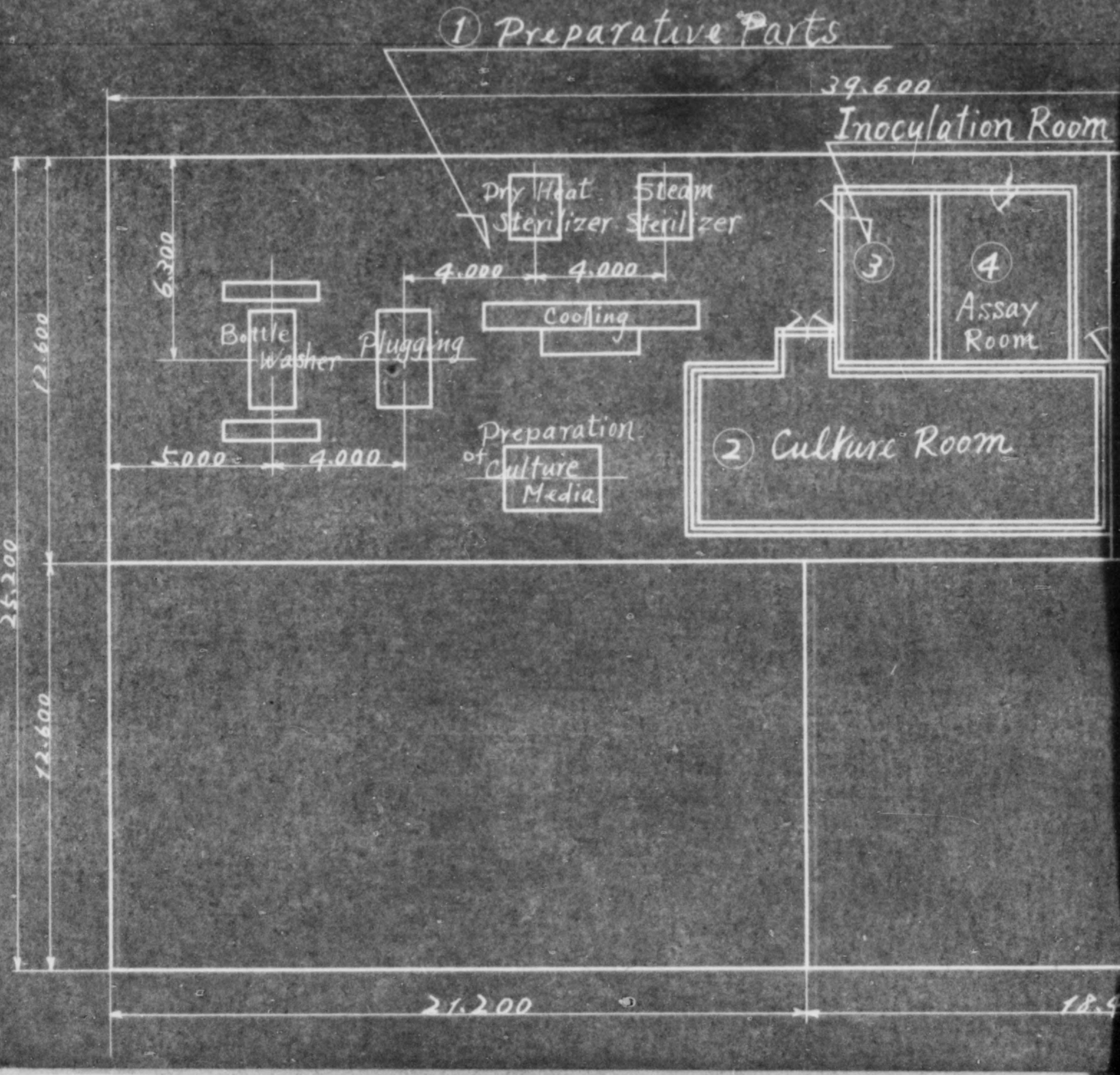
Investigations are being carried out for the construction of the pilot plant by the submersion method.

In addition, By the test of producing penicillin by the Koji method (by adding the yeast autolysate solution to the rice-bran) we obtained a considerable amount, but research is still being carried on.

We would like to express our gatitude to the generous favor of GHQ, by whose kindness we were shared through the Penicillin Association,three strains from America, one of which is for submersion culture and others for surface culture.

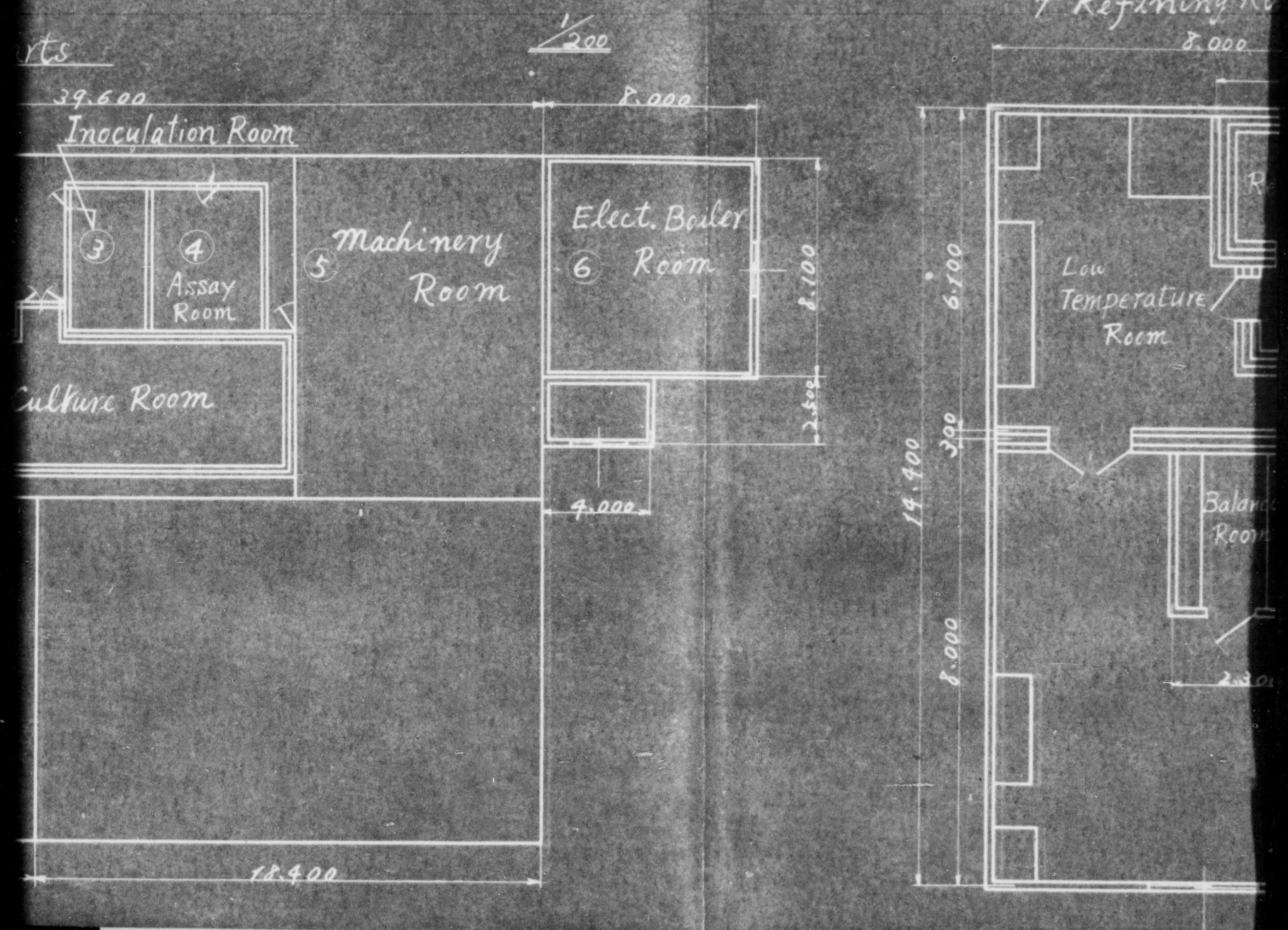
FIG.NO.1

Semi Comm



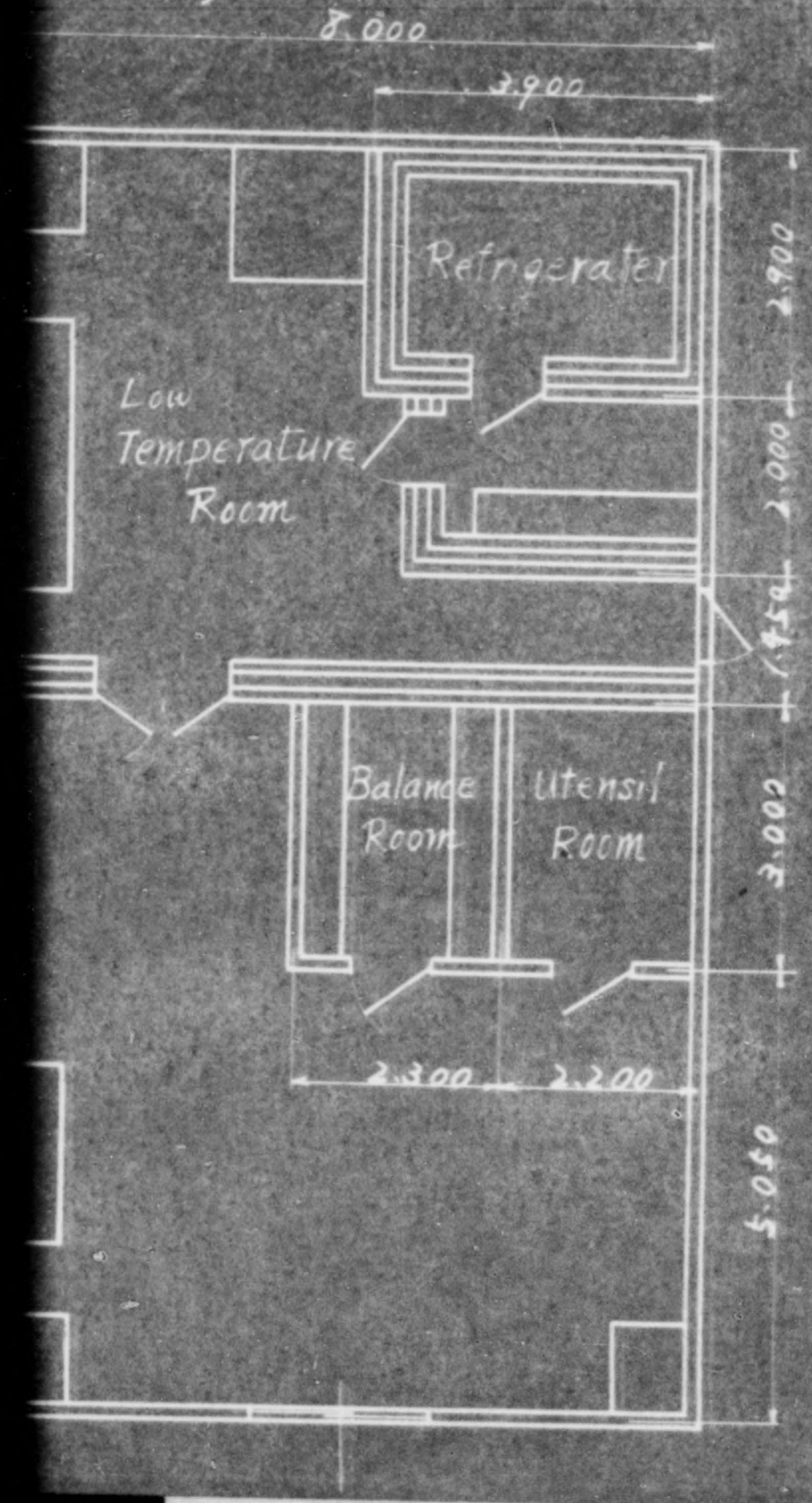
Semi Commercial Plant of Penicillin Manufacturing

1/200

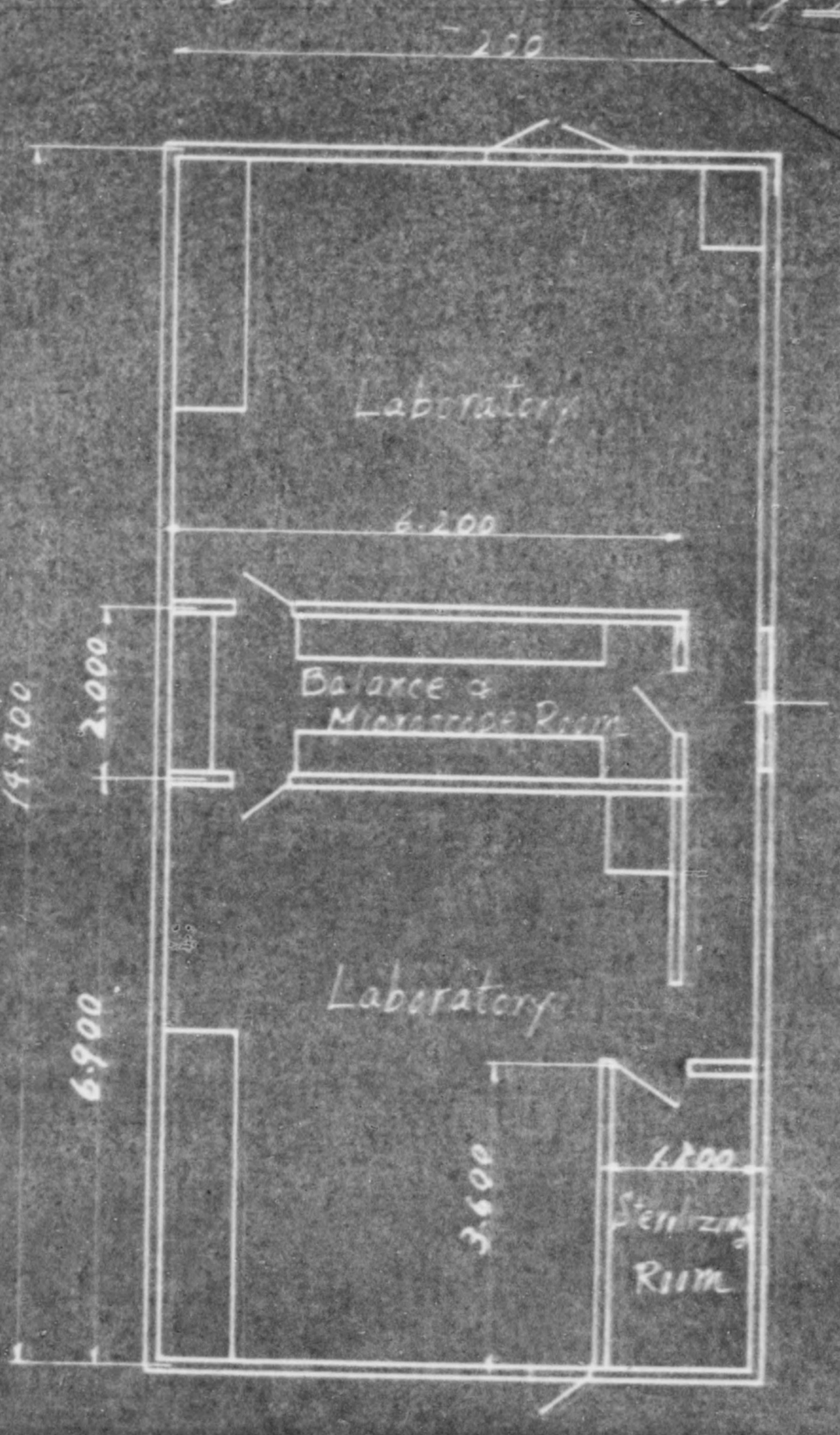


...acturing 50 L/day surface culture

7 Refining Room 1/100

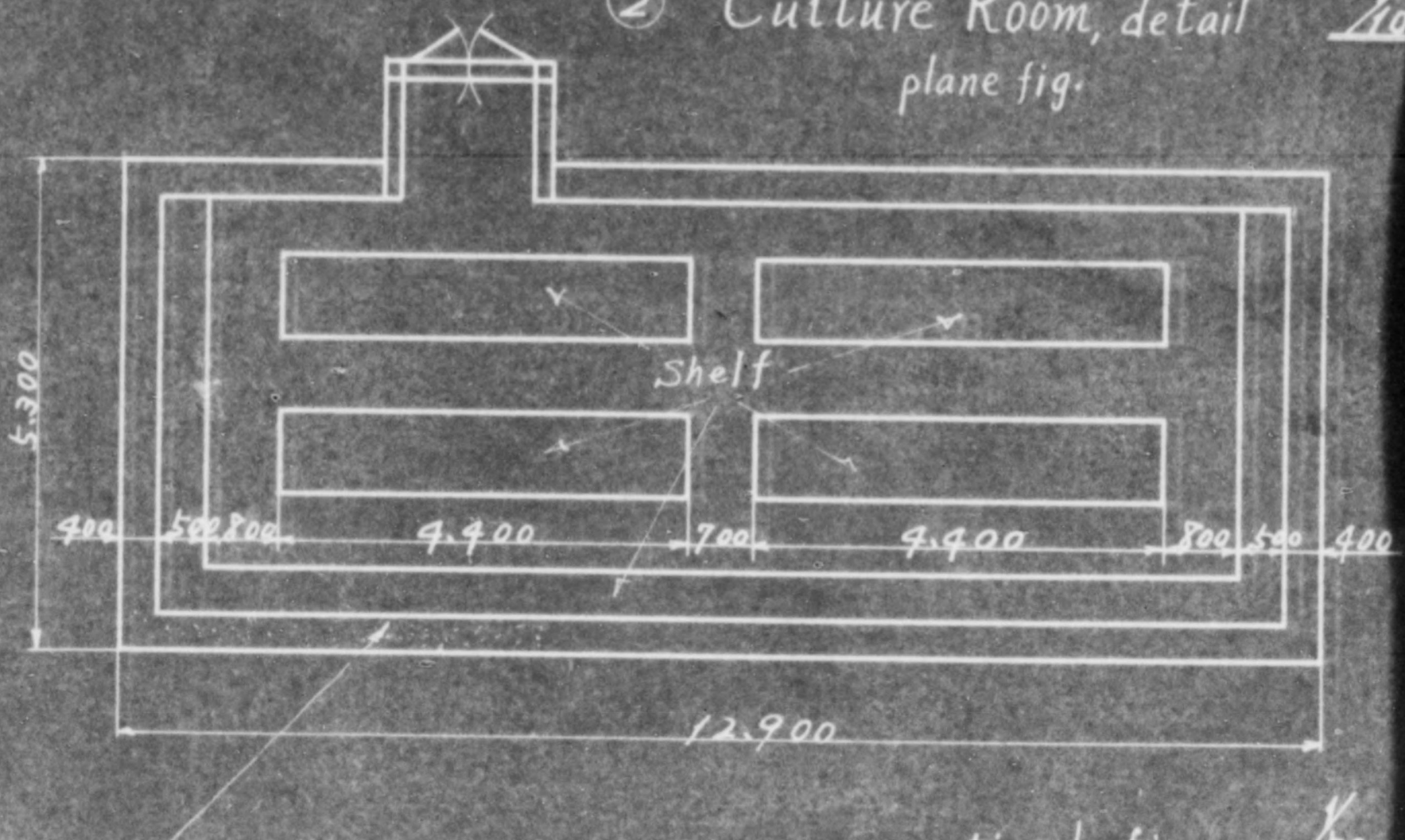


8 Culture Laboratory 1/...

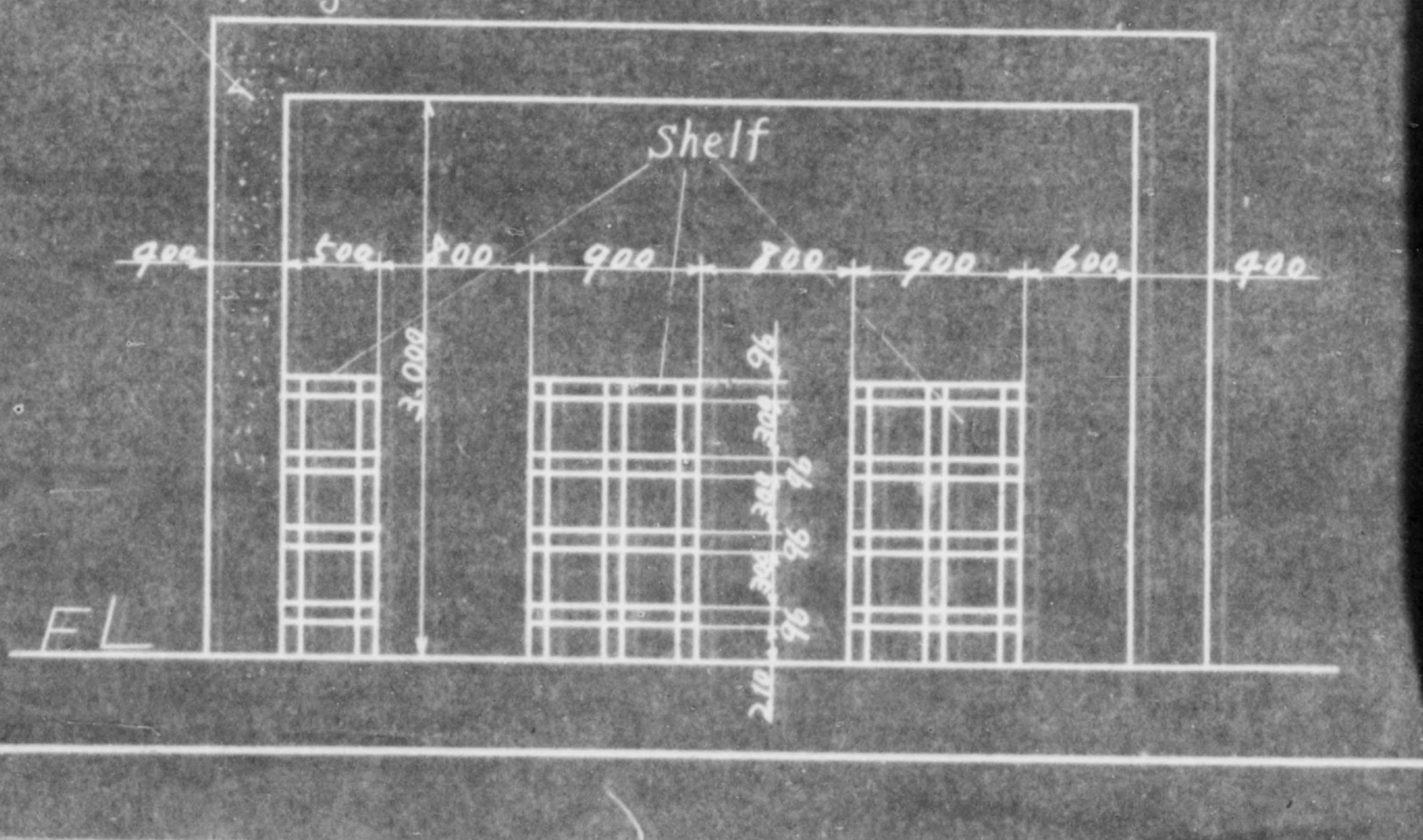


② Culture Room, detail 1/100

plane fig.

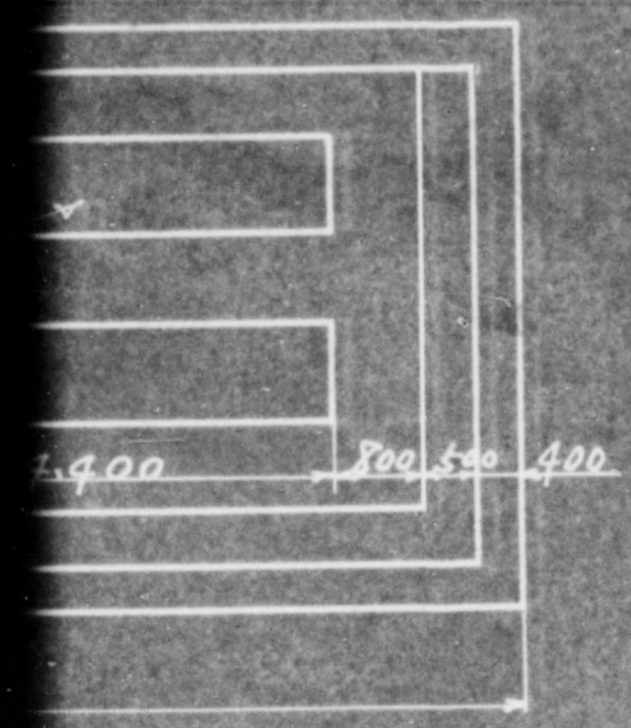


sectional fig. 1/50

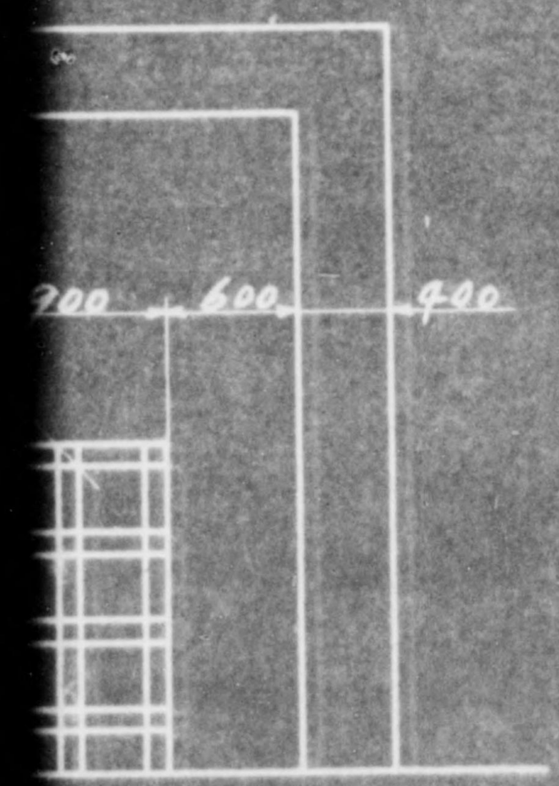


Room, detail 1/100

lane fig.

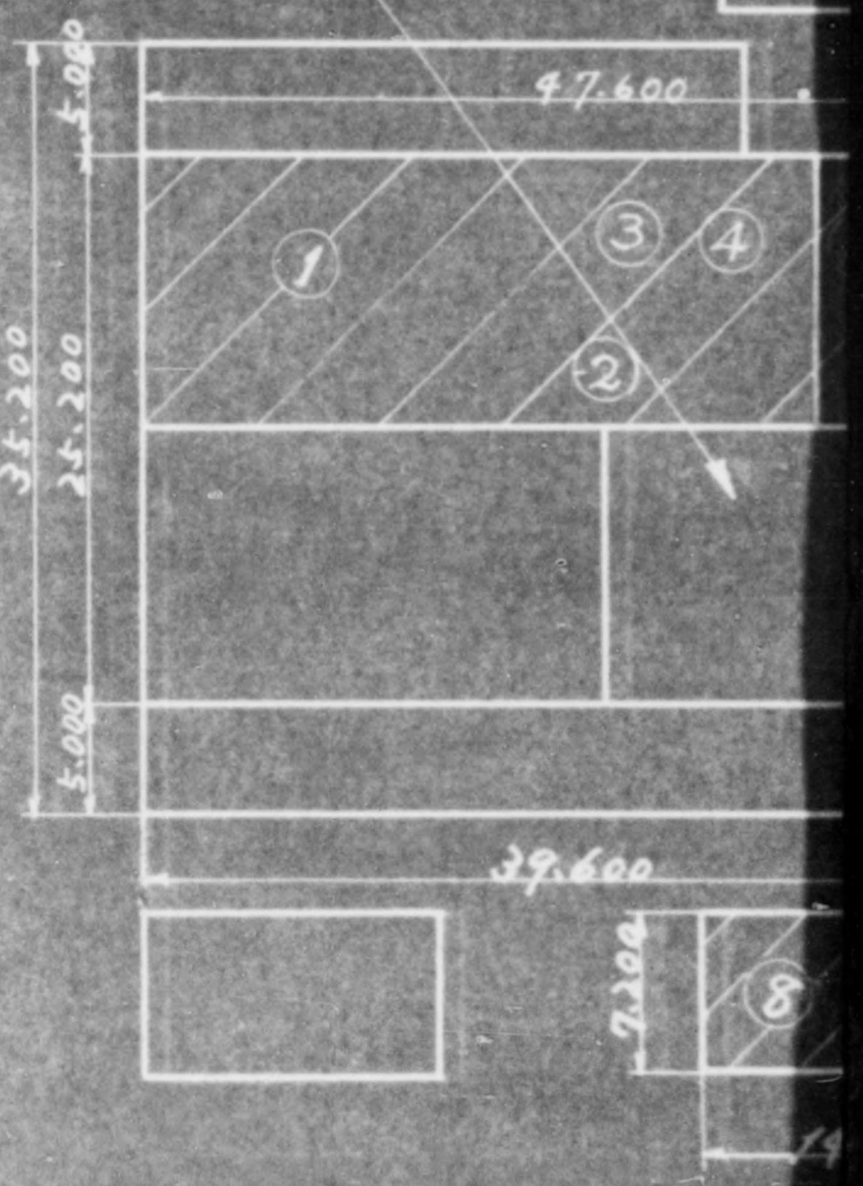


sectional fig. 1/50



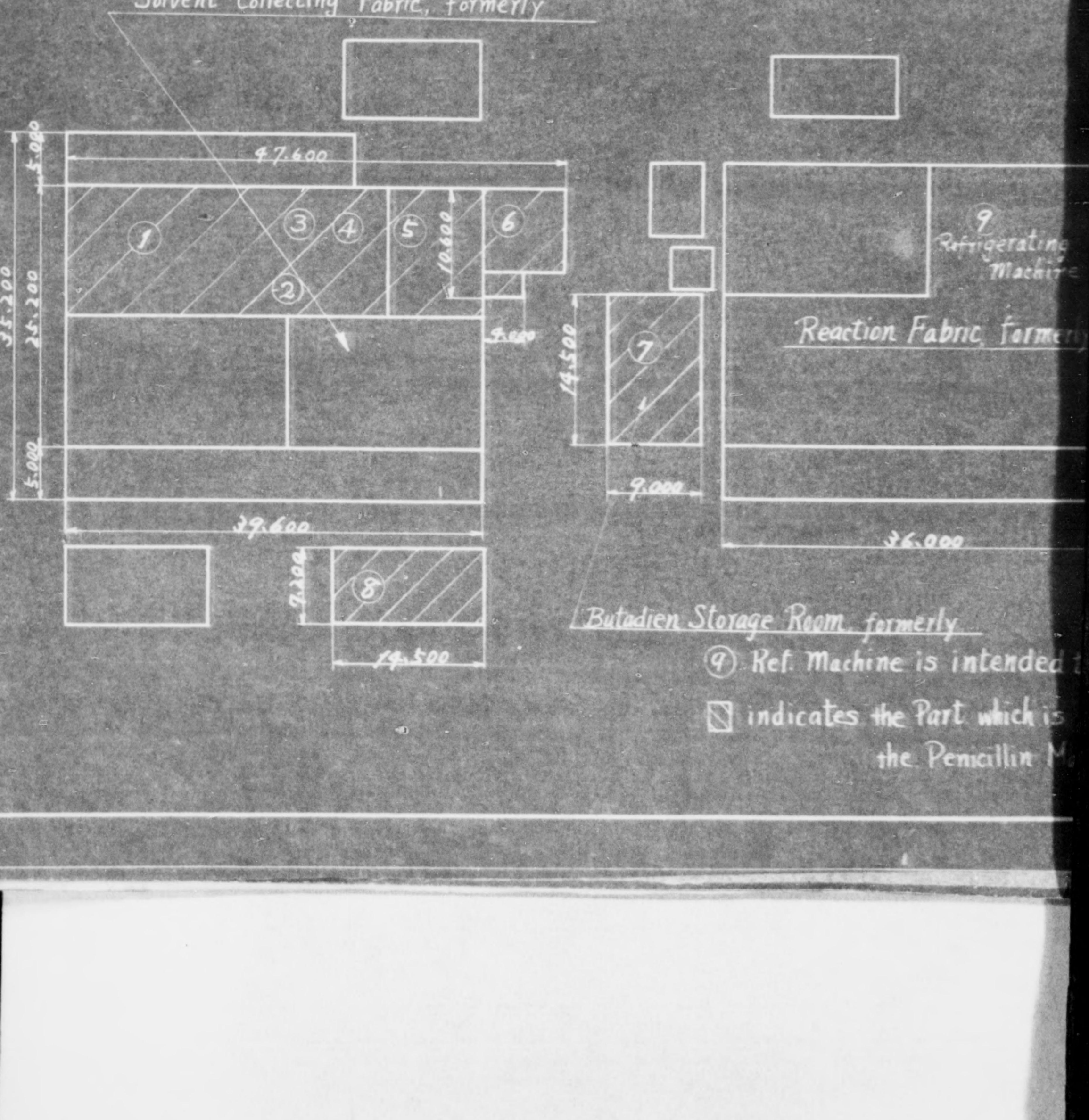
Position Diagram

Synthetic Rubber Factor
Solvent Collecting Fab



Position Diagram

Synthetic Rubber Factory, at Miyosima,
Solvent Collecting Fabric, formerly



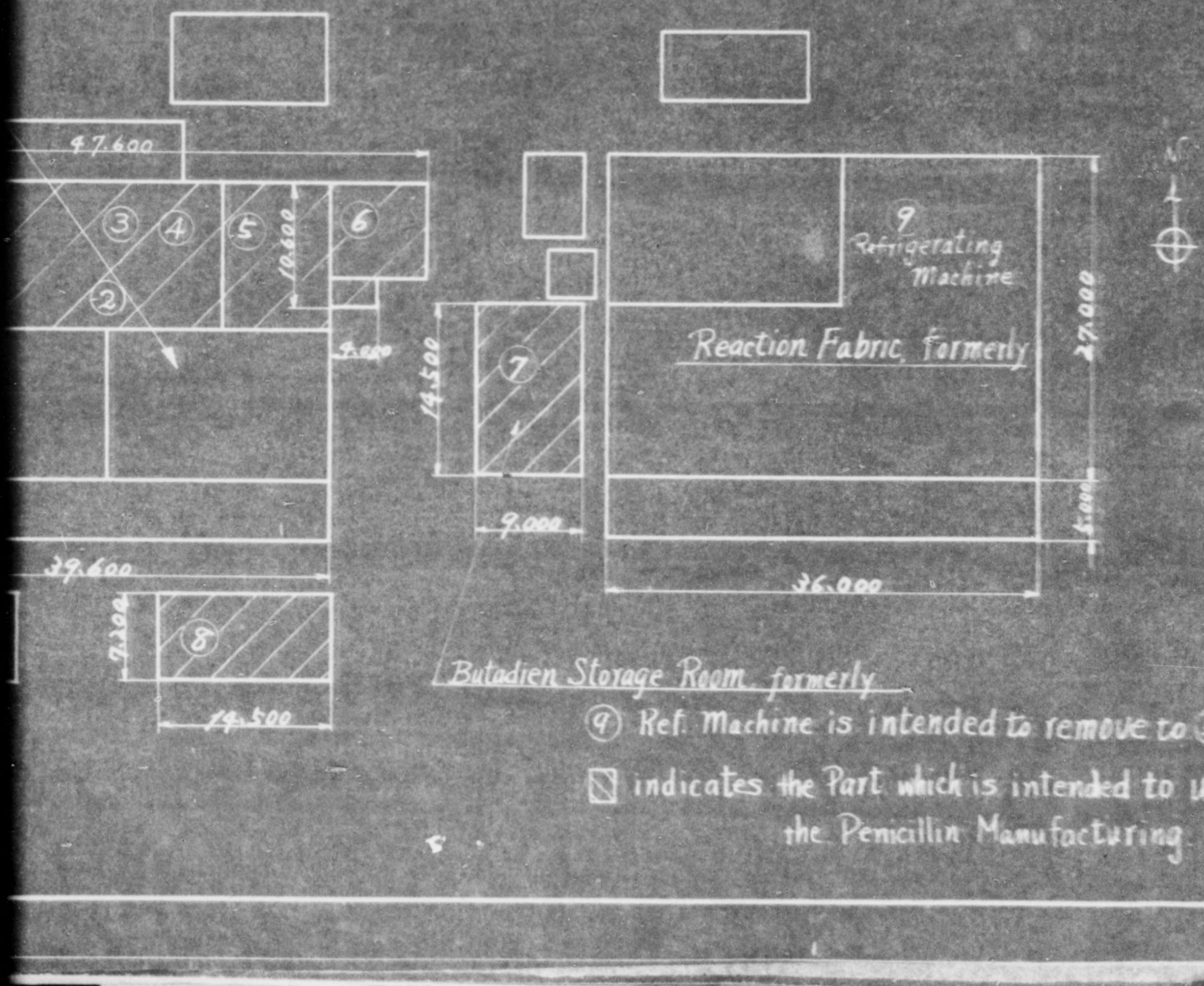
⑨ Ref. Machine is intended t

▨ indicates the Part which is
the Penicillin M

Diagram

c Rubber Factory, at Miyosima,
t Collecting Fabric, formerly

1/500



⑨ Ref. Machine is intended to remove to ⑤.

▨ indicates the Part which is intended to use the Penicillin Manufacturing.

FIG. NO. 2

Plan of Penicillin Pr

500L/Day Surface Cu

Plugging

Dry Heat Sterilizer No.1 No.2 No.3

Steam Steriliz No.1 No.2

Bottle Washer No.1 No.2

Cooling

Cooling

1 Preparation of Culture Media

Plugging

Filtration of Mold 5

14.000

4.000

6.200

3 Culture Room

2 Inoculation Room

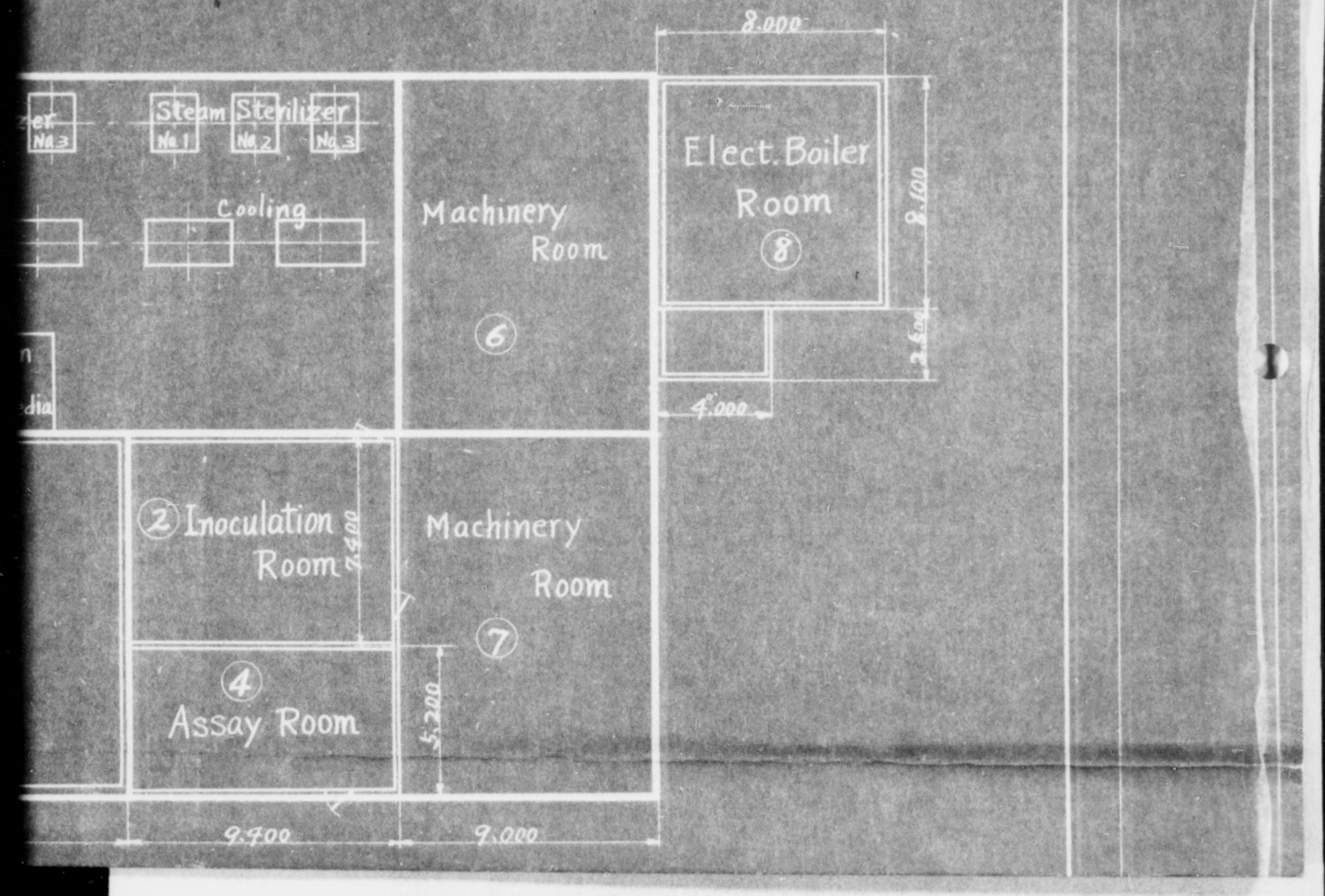
4 Assay Roo

21.200

9.700

Penicillin Production

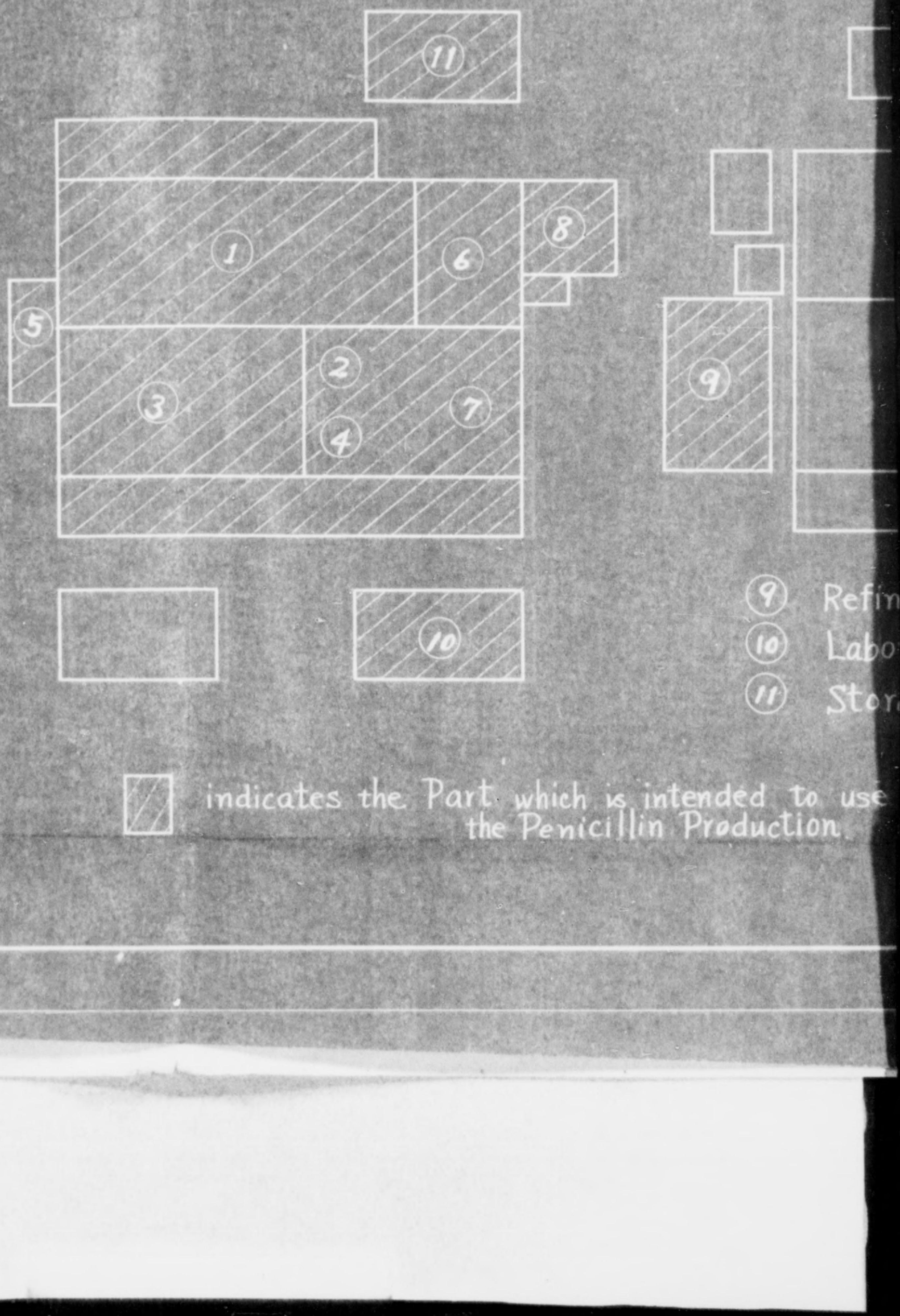
/Day Surface Culture



Bold Line indicates the Existing Structure

Position Diagram

The Whole View of Synthetic Rubber Factory, at Miyo

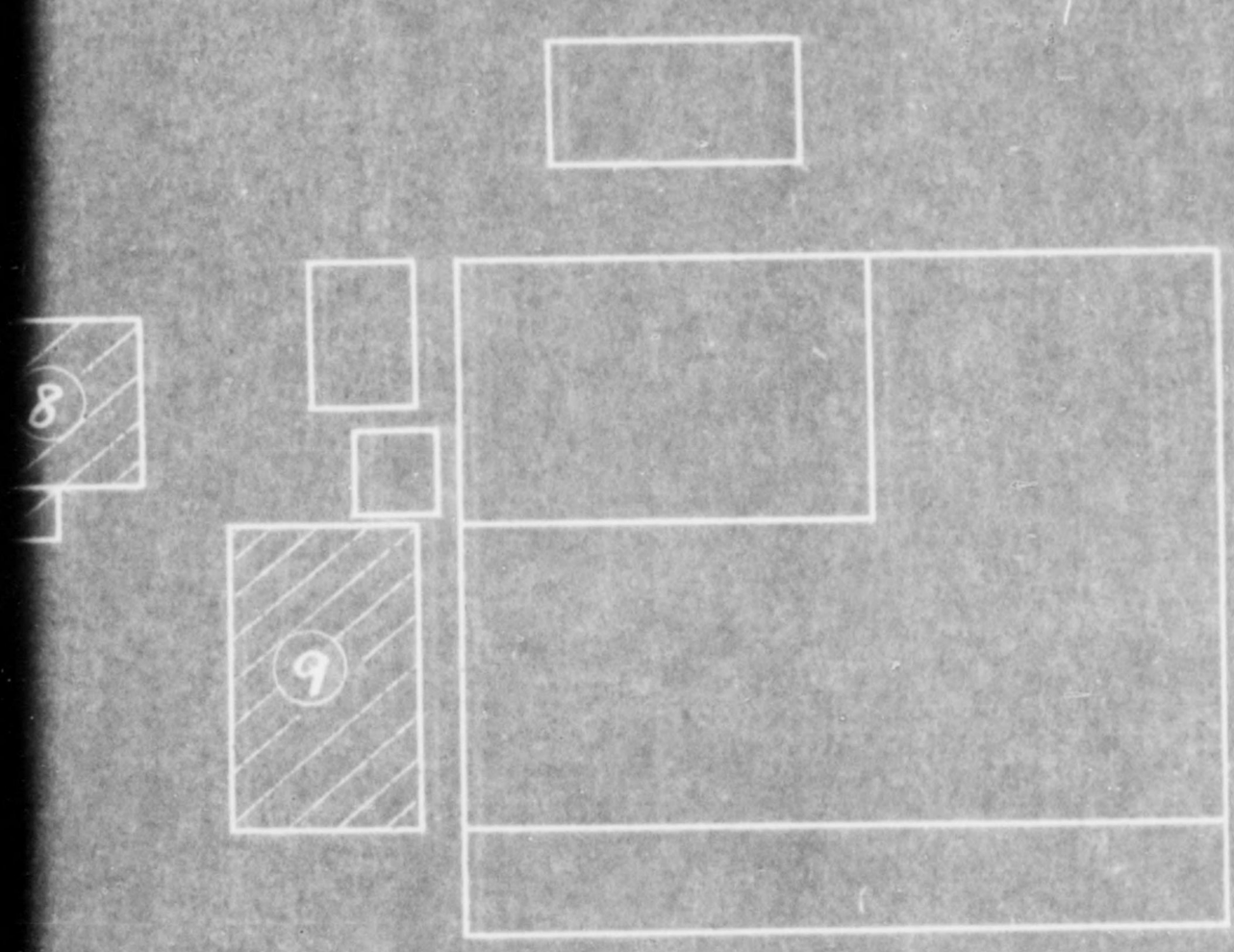


⑨ Refin
⑩ Labo
⑪ Stor

▨ indicates the Part which is intended to use
the Penicillin Production

cture

Rubber Factory, at Miyosima

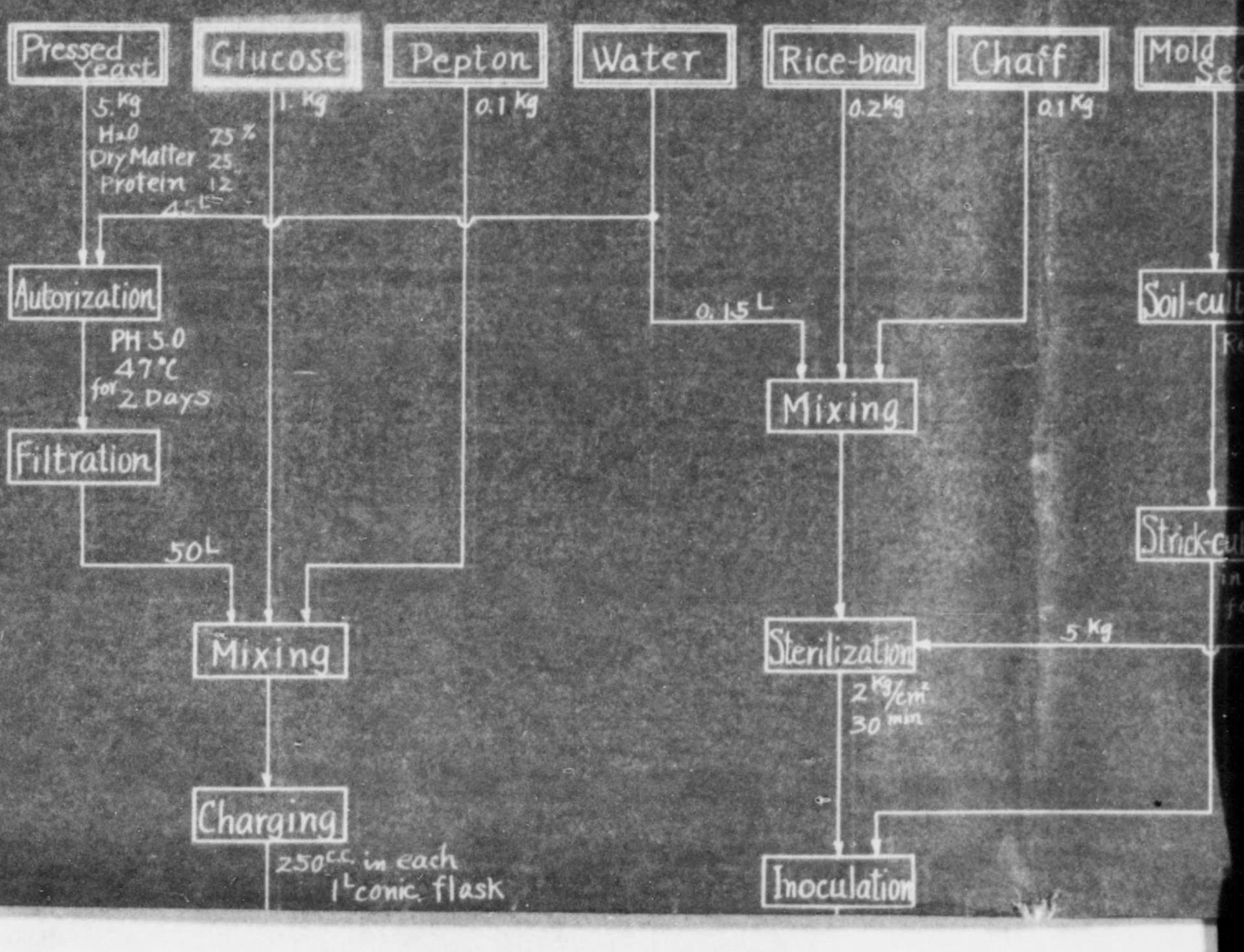


⑨ Refining Room
⑩ Laboratory } is the same structure as that in the 50ℓ/day culture
⑪ Storage Room of Raw Materials

hich is intended to use
enicillin Production

Flow Sheet of Peni

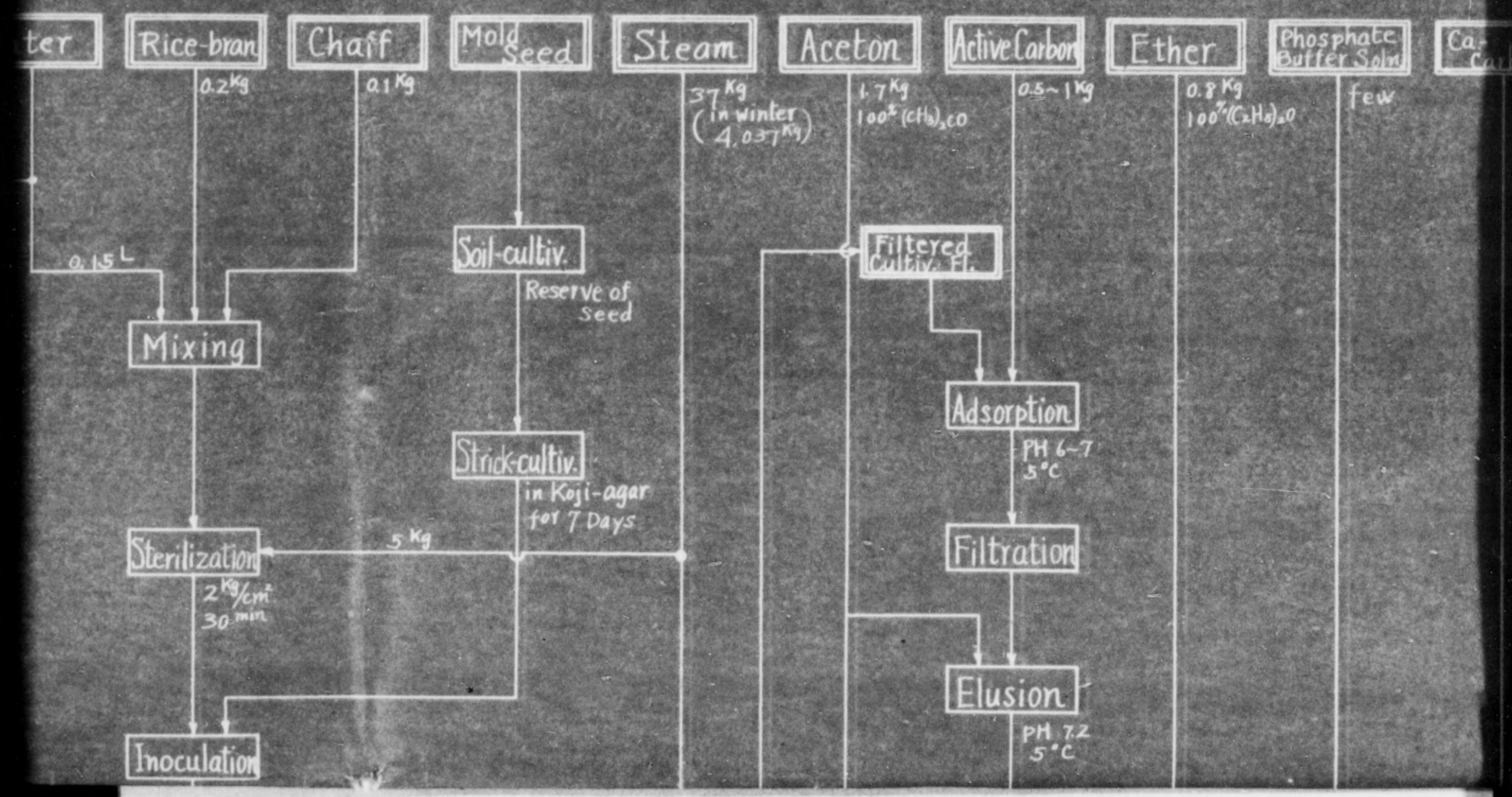
Surface Cu



Flow Sheet of Penicillin Production

50 L/Day Cultivation

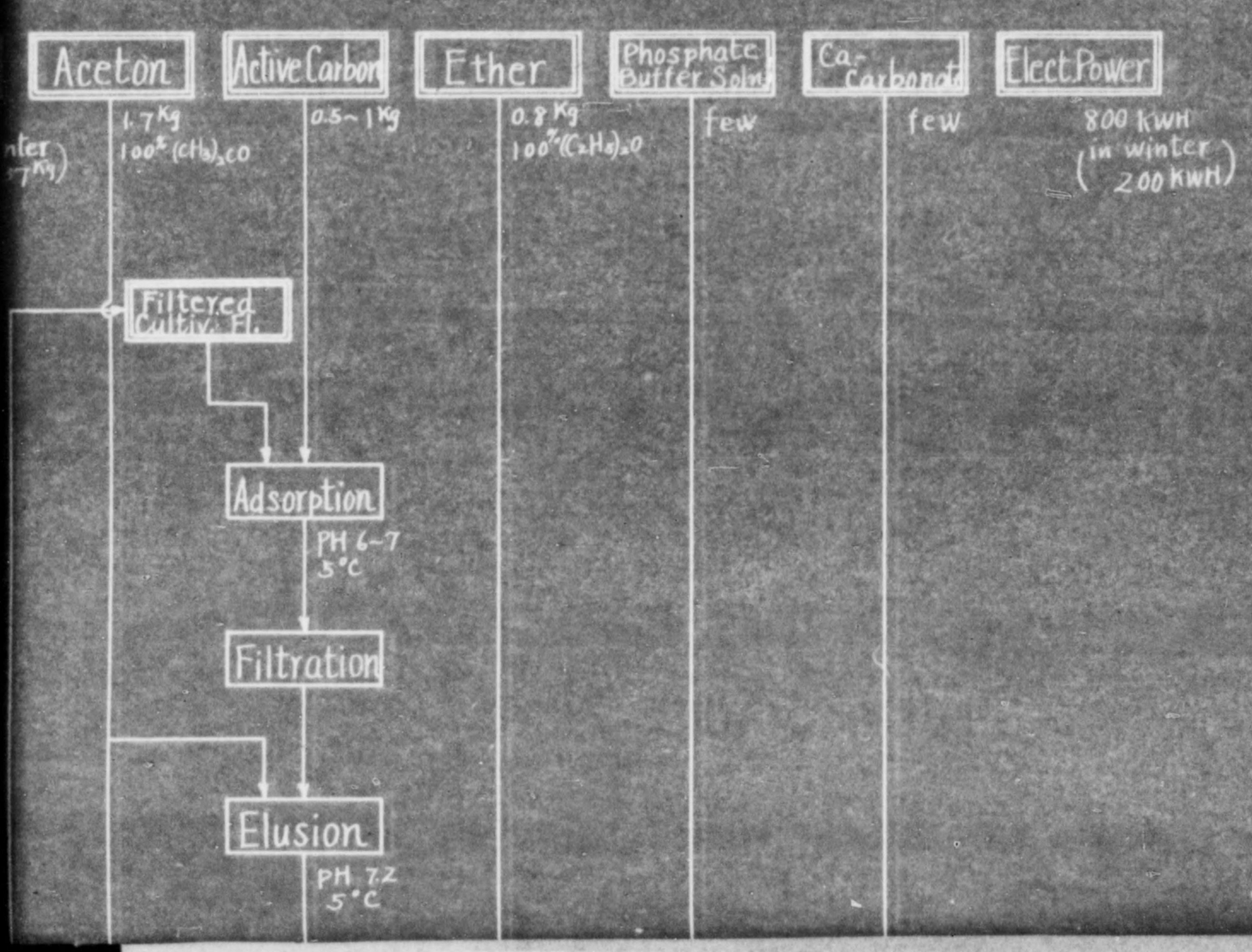
Surface Culture Method

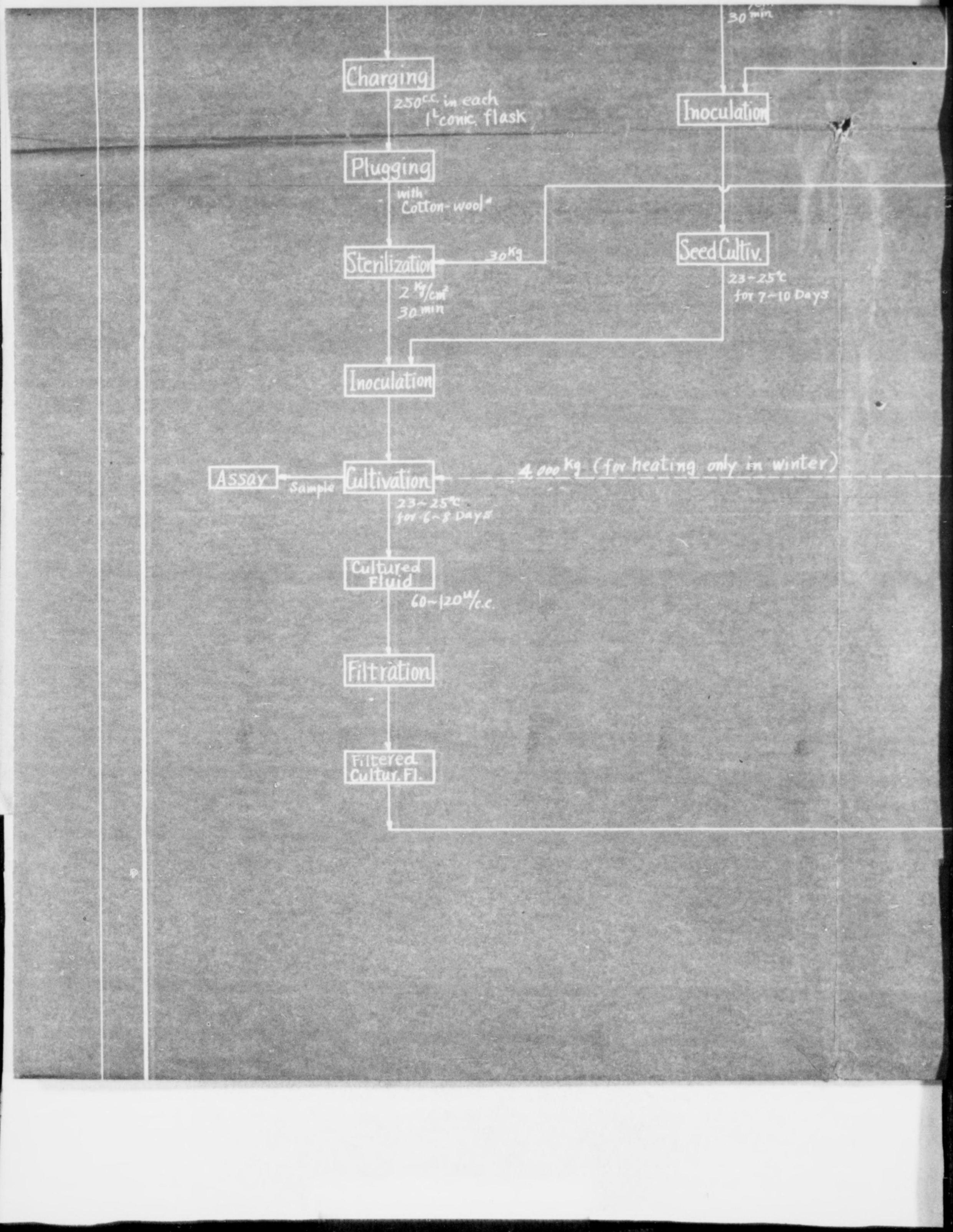


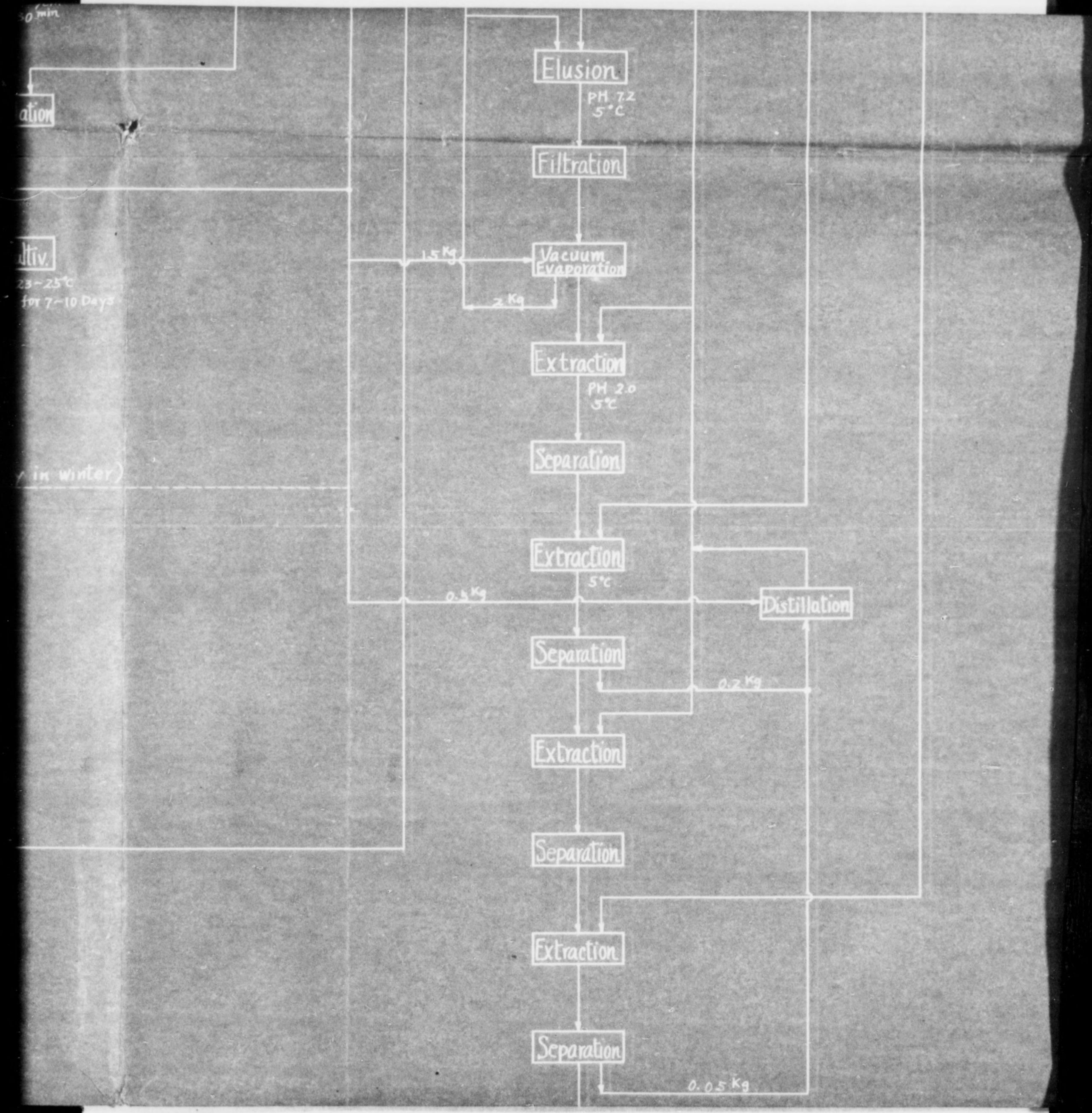
duction

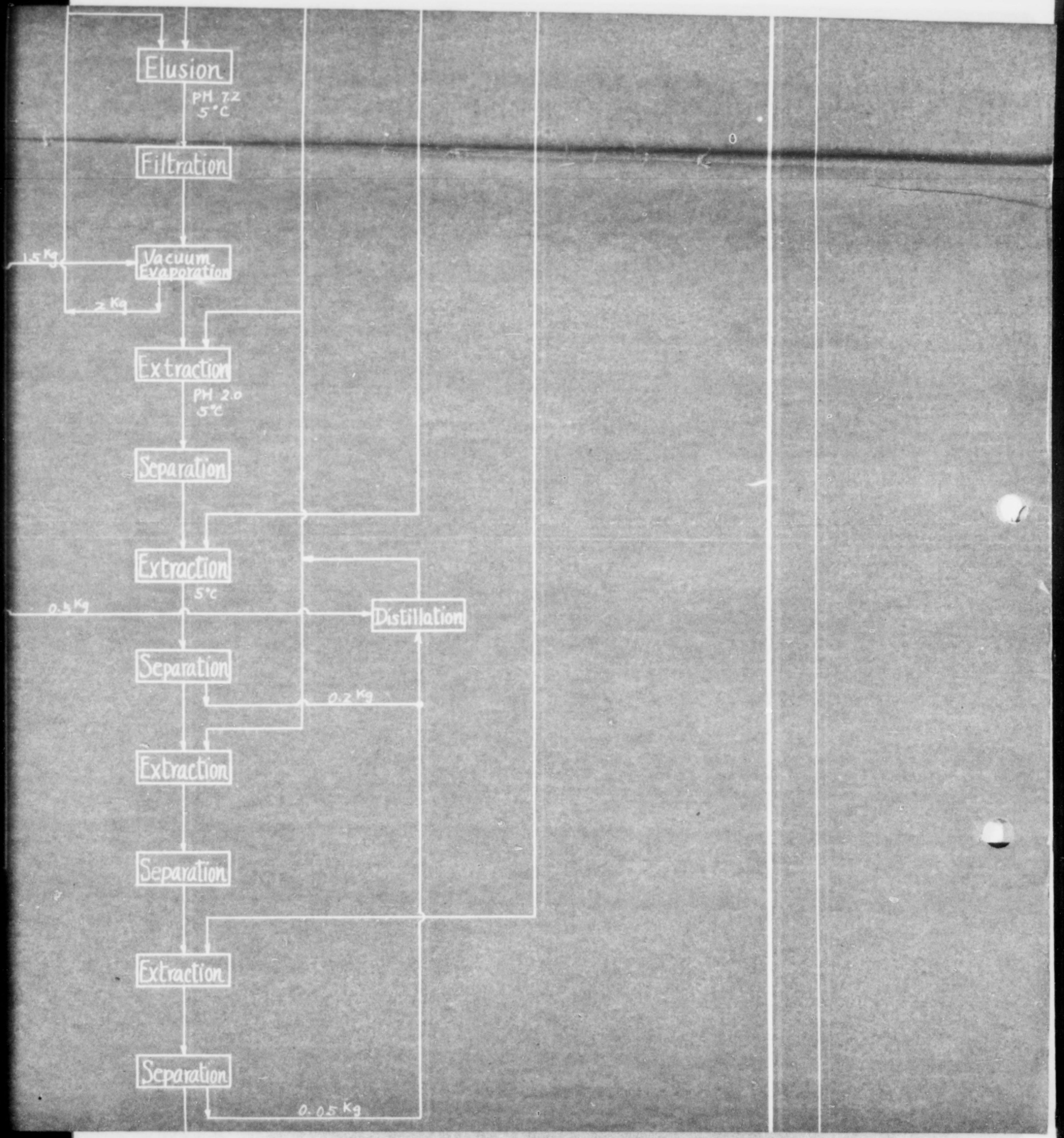
50 L/Day Cultivation

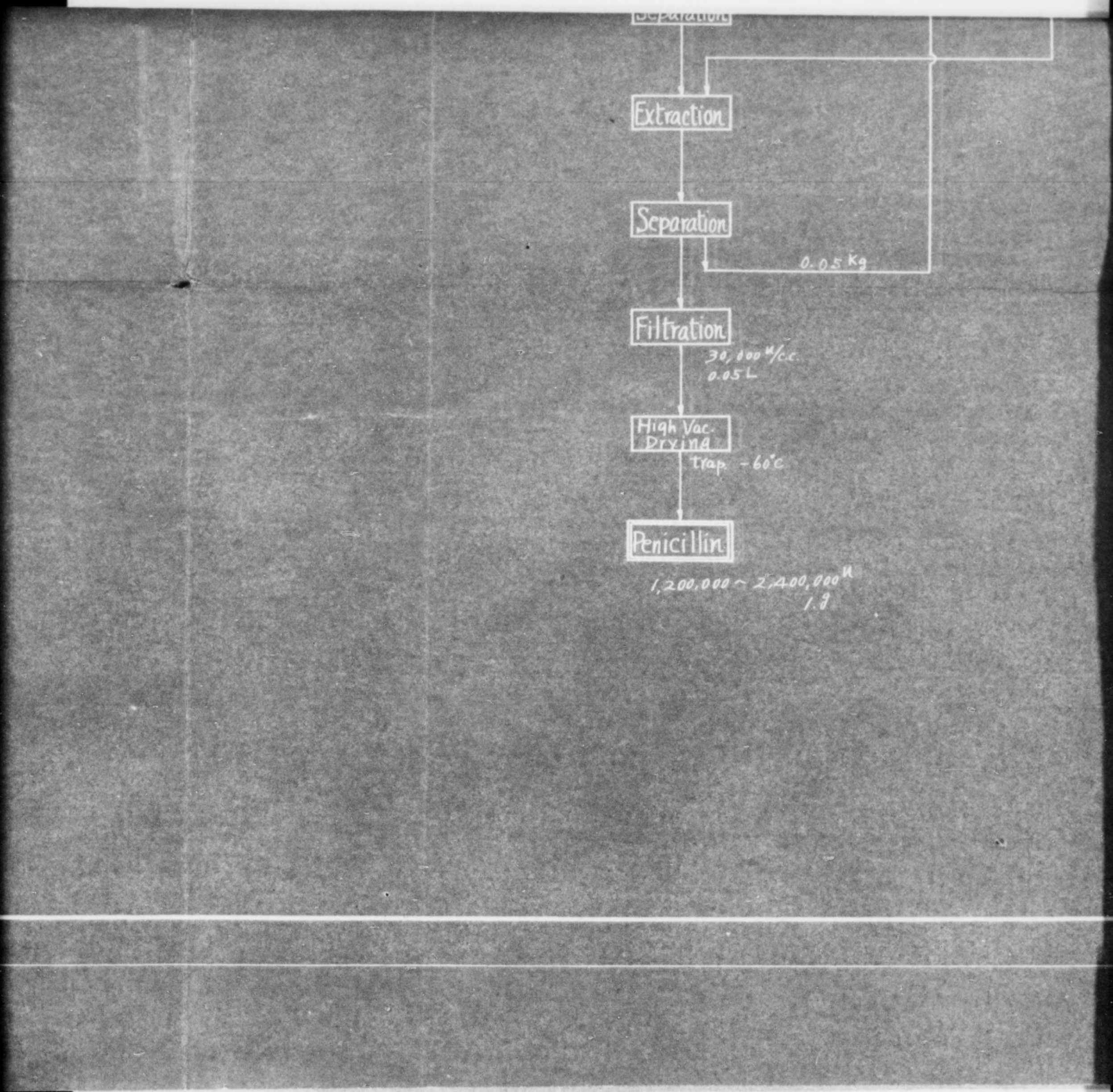
od

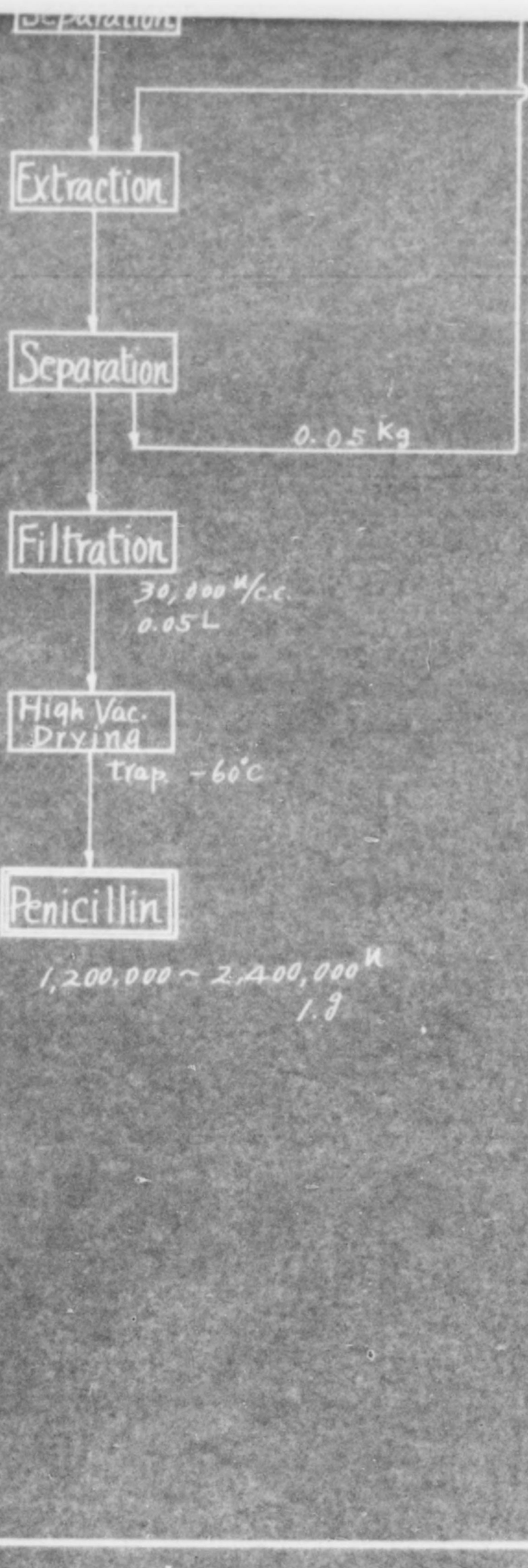












Registration No.	Name	Address	Dealer.
21	Takejiro Matsumoto	Wada machi Kunchoo cho Oyo gun	Medical and Health Supply.
22	Hisaho Uwehara	Hojo cho Onsen gun	" " " "
23	Yoshio Sano	Uchiko machi Kita gun.	" " " "
24	Yoshitaro Higaki	Ozu machi Kita gun	" " " "
25	Otoichi Sakurada	Kuma machi Kamiukena gun	" " " "
26	Ichiro Tanaka	4 chome Shinmachi Yahatahama	" " " "
27	Ishizaki Shoten	Marunouchi Uwajima ~~shi~~ city	" " " "
28	Yoshimatsu Den	Ensui cho Uwajima city	" " " "
29	Shoichi Endo	Ote Dori Uwajima city	" " " "
30	Shizuka Joko	Unomachi Uwa machi Higashi Uta gun	" " " "

Supply

Registered Medical Supply Dealers

Registration No.	Name	Address	Dealer
1	Setsuko Ochi	Doi mura Uma gun	Medical and Health Supply.
2	Ichiro Manabe	Mishima cho Uma gun	" " "
3	Yorimitsu Miyasaki	" " " "	" " "
4	Kenko Kuwabara	Higashimachi Saijo	" " "
5	Masayasu Araki	Ko 936 Niihama City	" " "
7	Masao Kuwabara	Nyugawa cho Shuso gun	" " "
8	Aritsuna Doi	Wakai Kurashiki Nikkabu Imabari city	" " "
9	Yoshimichi Kubo	Motomachi Imabari city	" " "
10	Terao Medical Co.	1 chome Jobancho Imabari city	" " "
11	Imabarai Commercial Medical Corporation	Kita Shinmachi Imabari city	" " "
12	Matsuyama Commercial Med Corporation	1 chome Tachibana cho Matsuyama City	" " "
13	Shinichi Doi	Ichiban cho Matsuyama city	" " "
14	Kokura Yakuhan	4 chome Minatomachi Matsuyama city	" " "
15	Uchida Doshi Kaisha	1 chome Fujiosaka cho Matsuyama city	Health supply.
16	Do Koichiro Wada	No 30 Benten cho Matsuyama city	Medical and Health Supply.
17	Heinako Murakami	No 2 of 11 Nishihoribata cho Matsuyama city	" " " "
18	Matsumoto Store	No 9 of 12 Tsukiyama cho Matsuyama city	" " " "
19	Ehime Yakuhin Shoji Kabushiki Kaisha)	Wada machi, Kanchu cho Iyo gun	" " " "
20	Doi Shoten	" " " "	" " " "

Supply Method Used For Calculation of Points

A Clinics with chief specialized doctor for each doctor 10 pt.

A' Clinics with hired doctors for each doctor 7 pt.

B Hospital and clinics with chief ~~specialized doctors~~ druggist for each druggist 5 pt.

C With hired druggist, nurses and helper for each 2 pt.

D Number of bed for each bed 2 pt.

E Coefficient for various specialist (average number for General Hospital)

F Out patient (including patients whom the ~~visit~~ doctor visits)

(A + A' + B + C + D) X E X F = point given

F = average patient per day (out patient and the patients whom the doctor visit) Until 10 patient, 0.1 will be added for increase in patients from 1 to 10 Fraction will be ~~counted as whole decimal~~ raised to next.

To Ehene M. D. Beam.
From Mayor of Nuevajera
Regarding the Chlorination of Water.

Thank you very much coming the other day a

5,249,008 1947

.2937,270 —

10,881,840 —

500 1.4 - 2%

500 | 10.00
1000

500
.10
50.00

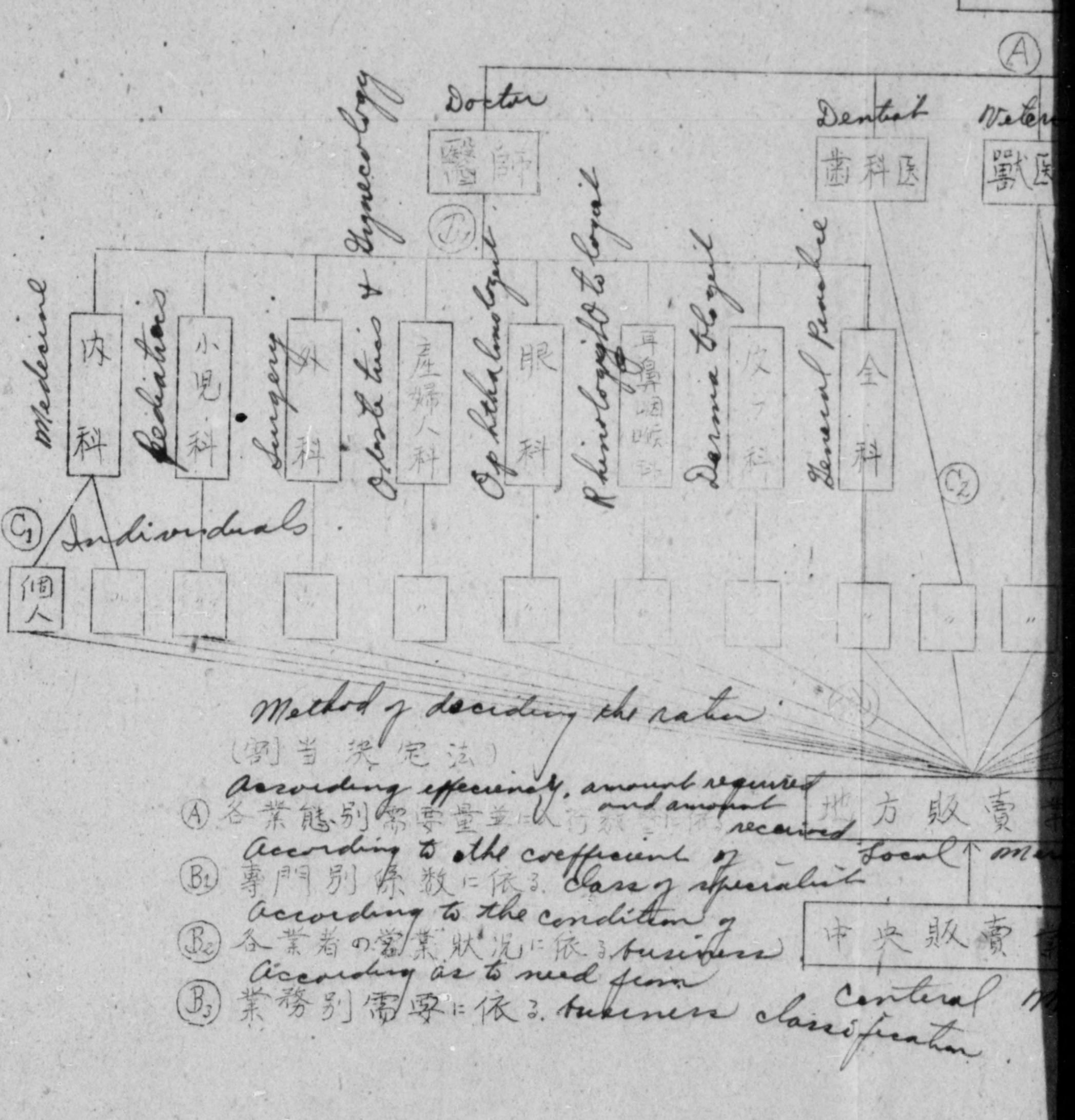
Supply

Welfa

厚生

Prefe

縣



Method of deciding the rates

(割当決定法)

(A) 各業態別需要量並に供給予想量に依る。 According especially, amount required and amount received

(B1) 専門別係数に依る。 According to the coefficient of class of specialist

(B2) 各業者の営業状況に依る。 According to the condition of business

(B3) 業務別需要に依る。 According as to need from business

Central ... classification

Welfare Minister

厚生大臣

Prefectural Governor.

縣知事

(A)

割当

Dentist 歯科医 | Veterinarian 獣医師 | Druggist 調剤 | Retail store 小賣 | others 其ノ他

(B2) (B3)

Dentist Hospital 歯科病院 | Dentist Clinic 歯科 | General Practice 全科 | No. 1 Merchants 一号業者 | No. 2 Merchants 二号業者 | Barber 理髪店 | Needle Treatment Establishment 鍼灸術営業所 | Bone setter 柔道整復師 | Midwife 産婆 | 個人

(C1) (C2) (C3) (C4) (C5) (C6) (C7) (C8) (C9)

Follows the principles for classifying clinics.

(C1) 各診療所別算定式に依る

(C2) 〃

(C3) 〃

(C4) 〃

each nation.

amount required and amount received 徴収に係る額と収納額との割合

地方販売業者 Local merchants

中央販売業者 Central Merchants

classification

Supply Re: Regarding Whether or not the Wisbon Chemical Company carried out any blackmarket deal.

Regarding the investigation ask by you whether the Wisbon Chemical Company carried out any blackmarket deal, we believe none has been carried out.

1. Regarding whether the penicillin has been manufactured aside from the report of the company.

1(a). From the books of the company regarding labors it has been found that there workers for the penicillin plant has increased as the research progressed. As in the separate sheet, the ~~labor~~ women increased as the ~~production~~ facilities of production increase according as reported by the Company. We believe therefore that the Company did not produce as much penicillin before October.

(b) ~~The books~~ When the book which has the list of material ordered from Osaka was checked over with other books it was found to check. ~~From~~ By checking the material used for the production of penicillin we believe that aside from the product reported by the Co. no other has been produced.

(c) The fact that the Company has reported low production of penicillin until recently was due because they have been using Br type which had caused low concentration and difficulty in purification.

From 9 Dec. they have been using B17E which was received from SCAP, although the Company bought efficient vacuum pump. because of the lack of parts it has not been working well until Nov. Also regarding the permit for changing the use of refrigerating plant from SHQ, the permit was not received promptly We believe such process of making dry ice from liquide CO_2 has slowed down production Therefore we cannot believe that the company has been restricting low production to sell the rest thru black market

(1) Aside from the small amount used for experimental purpose, checking over the amount in stock we cannot believe the penicillin has passed out thru illegal channels.

(2) As according to the copy of the material received from Omaha, the bottle although was received on 27 Aug. the rubber stopper and cap was received on 22 Oct. The machine for putting the cap on the bottle was received on 1 Nov. In other words it was after Dr Hamilton visit that they were able to bottle the penicillin. Before that the company had no container. The orders for labels and wrapping paper are at present being sent to Omaha. We therefore believe that in the past the company did not sell any penicillin as a finish stock.

(4) We have investigated the doctors, hospitals and druggists of the area but found no trace of blackmarket penicillin from the Co.

12 Roberin Hydrochloride for injection
13 " "
14 Hydrogen peroxide
15 dilute alcohol.
16 Quinine injection
17 Quinine urea ample.
18 ethyl chloride.
19 Silver colloide.
20 Bismuth subsalicylate
21 Bismuth subsalidylate for injection.
22 Mercuric chloride for disinfection.
23 Reprid Iodine
24 Sodium Chloride solution.
25 Thiantal
26 Sodium bicarbonate tablets
27 Thiperal
28 Sulfaguanidine
29 Sulfaguanidine tablets.
30 Sulfamine tablets.
31 Powder of digitalis.
32 Powder of digitalis for injection
33 Powder of Japanese Chiretta.
34 Potassium bromide.
35 Protein silver
36 Scopolamine hydrobromide.
37 Midphazol.
38 Ether for anaesthesia.
39 Chloroform.
40 Iodine
41 Extract of scopolia

In order to save up the circulating fund difficulties now experienced by the manufactures, Central dealers, local and retail dealers; transactions will be made drafts. It will be made so that this will be accepted by the banks (transaction for rationed drugs)

Medical Supply

Dental gold will be one of the 13 items designated in the Official Government Bulletin 27 Jan -

The noble metals designated are

Gold (5 grams pure gold) platinum (0.15 gram metal) silver (25 gram metal) platinum foil. platinum gold non casting silver alloy casting silver alloy. pure silver (parking) silver alloy (packing) nickel-chrome alloy, Monel metal soldek metal, silver-tin alloy.

Users.

Dentals, Hospital with dental clinic and dental schools.

Dealers.

Those who has been registered in the Ken Ken will determine the dealers, taking into consideration, the capital, financial condition whether or not they have a place for safe keeping.

The Ken has not yet received official notification from the Welfare Ministry (Mr. Fujita believe this due to the strike now being carried out by the communication and transportation workers)

Drugs which went off the ration.

1 Zinc oxide ointment.
2 aspirant.
3 acetosulfamine injection
4 amino-pyrine. tablets.
5 amino-cordin.
6. insuline.
7. Calcium chloride
8 calcium chloride for injection
9 solution of Suprenamine hydrochloride.
10 Procain hydrochloride for injection
11 Procain hydrochloride tablets.

(over)

I

List of allotment of medicine f

Item \ Classification / Quantity	Physician	Dentist	V
Zinc oxide	50,000 Kg		
Zinc oxide ointment	50,000		
Rivanol	1.800 K.		
Acetylsalicylic acid	195,000		
Acetylsalicylic acid tablets		11.400 T	
Aminopyrine	70,000 K		
Aminopyrine tablets	20,000		
Alcohol	300,000 K	40,000 K	
Caffeine with sodium benzoate	7.000 K		
Calcium chloride	100,000 K		
Calcium chloride for injection	35570 A		
Solution of epinephrine hydrochloride	10,000	3,300	
Ephedrine hydrochloride	400g		
Procaine hydrochloride	1,000 Kg	200g	
Procaine hydrochloride for injection	227.00A	13,000	
Lobeline hydrochloride for injection	750A		
Solution of hydrogen peroxide	198.000 Kg	39,000	
Aromatic castor oil	118.500 Kg		
Mild tincture of iodine	41.000 Kg		

llotment of medicine for the month of Feb. and Mar. 1948. (No.1)

cation / ity	Physician	Dentist	Veterinarian	Compounding of medicine	Retail of medicine	Other	Remainder	Total
	Kg 50,000						2.500	Kg 52.500
	50,000						2.000	Kg 52.000
	K. 1.800						0	K 1.800
	195.000			12.000			2850	K. 207.850
		T 11.400			17.100		0	28500T
	K 70.000						Kg 6006	K. 70.600
	20.000				16.000		0	36.000T
	K 300.000	K 40.000	20.000	20.000			28.000	Kg 408.000
	K 7.000			800g			0	K. 7.800
	K 100.000						1.500	Kg 101.500
on	35570 A						0	35.570 A
ydrochloride	10.000	3.300					40	13.340
	400g						75g	475g
	Kg 1.000	200g					0.	Kg 1.200
tion	227.00A	13.000					0	240.00A
ection	750A						0	750A
	Kg 198.000	39.000			160.000		0	Kg 397.000
	Kg 116.500			7.500	32.000		0	Kg 158.000
	Kg 46.000		10.000		60.000		0	Kg 116.000

Item \ Classification - Quantity	Physician	Dentist
Tincture of cinchona	80.000 Kg	
Indramin	200g	
Quinine hydrochloride	96.000 K	
Quinine hydrochloride tablets	10,750 T.	
Quinine injection	39.700A	
Bagnon injection	19.100A	
Hydrochinine	861.000 K	
Quinine sulfate tablets	446.780T	
Compound tincture of gentian	251.000 Kg	
Glycerin	557.000 Kg	18.000
Solution of cresol soap	1002.000 Kg	70.000
Sesame oil	12.000 Kg	
Colloidal silver	2.000 Kg	
Solution of potassium acetate	7000 Kg	
Sodium salicylate	59000 Kg	
Santonin tablets	647.00T	
Bismuth subsalicylate	28.000 Kg	
Sodium bicarbonate	900.000 Kg	500.000 Kg
Silver nitrate	2.300 Kg	
Alcohol for disinfection	200.000 Kg	

No. 2

ication - Quantity	Physician	Dentist	Veterinar-ian	Compounding of Medicine	Retail of m.	Other	Remain-der	Total
	Kg 80.000						0	Kg 80.000
	200g							0 200g
	K 96.000						0	Kg 96.000
	10.750T.				10.750		0	21.500T.
	59.700A						0	59.700A
	19.100A						0	19.100A
	K 861.000			45.000				906.000
	416.780T						0	416.780T
	Kg 250.000		7.000	22.000			0	Kg 285.000
	Kg 557.000	18.000		12.000			0	Kg 587.000
	Kg 1002.000	70.000	15.000		300.000		K 83	Kg 1468.000
	Kg 12.000						500g	Kg 12.500
	Kg 2.000						0	Kg 2.000
	Kg 7000						500g	Kg 7.500
	Kg 52000						500g	Kg 52.500
	647.00T						0	647.00T
	Kg 28.000						150g	Kg 28.150
	Kg 900.000	Kg 500.000	10.000	20.000			0	Kg 1530.000
	Kg 2.000						0	Kg 2.000
	200 Kg 000				Kg 40.000	40.000	2.000	Kg 282.000

Item. \ Classification / Quantity	Physician	Dentist
Purified iodine	3.400 Kg	
physiological solution of sodium chloride	53.000	
Tar and sulfur paster	100.000 Kg	
Albumin Tannate	100.000	
Mitigal	191.000	
Bismuth subsalicylate for injection	17.500 A	
Theophylline with sodium acetate	1.400	
Sulfaguanidine tablets	2.600	
Sulfapyrimidine	390.000 Kg	
Sulfapyrimidine tablets	3.230 T	
Sulfathiazol	50.000 Kg	
Sulfapyridine injection	2.180 A	
Sulfanilamide tablets		2.720 T
Digitalis injection	18.000 cc	
Serortia	90.000 Kg	
Nupercain	500 g	100 g
Ergot	6.000 Kg	
Barbital	2.000 Kg	
Ethyl chloride	10.000 Kg	
Mercuric bichloride for dissinfection	700 g	
Sulfamethyl thyasol tablets	33.400 T	

No. 3

lication	Physician / Quantity	Dentist	Veterinarian	Compounding of M.	Retail of M.	Other	Remainder	Total
	Kg 3,400			3,000			Kg 1,300	Kg 7,300
oride	53,000						0	53,000
	Kg 100,000				115,000 ~~71,000~~		0 ~~500g~~	215,000 Kg ~~191,500~~
	100,000				91,000		500g	Kg 191,500
	191,000			4400	30,000		0	Kg 225,400
ion	17,500A						0	17,500A
te	1,400						0	Kg 1,400
	2,600				2100		0	5,200T
	Kg 390,000						0	Kg 390,000
	3,230T						0	3,230T
	Kg 50,000						0	Kg 52,000
	2,180A						0	2,180A
		2,720T	2,720		21,860		0	27,300T
	18,000 cc		2,000 cc				0	20,000 cc
	Kg 90,000			10,000			0	Kg 100,000
	500g	100g					0	600g
	Kg 6,000						0	Kg 6,000
	Kg 2,000						500g	Kg 2,500
	Kg 10,000						0	Kg 10,000
fection	700g						0	700g
	33,400T						0	33,400T

Item \ Classification / Quantity	Physician	Dentist	V
Castor oil	60,000 Kg		
Acetophenetidin	3,000 Kg	5,000	
Acetophenetidine tablets	90,000	5,600	
Dextrose	7,000 Kg		
Dextrose injection	9,800 A		
Potassium bromide	7,000 Kg		
Bromural	8,000		
Solution of formaldehyde	158,000 Kg		
Mercurochrome	1,000 Kg		
Ether	2,000		
Anesthetic chloroform	4,000		
Ointment of Japan wax	18,000		
Soluble saccharin	6,000		
Iodine	15,000		
Potassium iodide	15,000		
~~Hydrops Hypo~~ Tincture of iodide	15,000		
Hydrous wool fat	60,000		
Zinc sulfate	1,000		
Remijin	3830 A		
Scopolia extract	2.000		

No. 4

Classification / Quantity	Physician	Dentist	Veterinarian	Compounding of M.	Retail of M.	Other	Remainder	Total
	60,000 kg						-	
	31,000 kg	5,000	5,000				18,000	73,000 kg
	90,000	5,600	5,600				0	44,000 kg
	2,000 kg						0	101,200 T.
	9,800 A		600				400 g	7,400 kg
	7,000 kg						0	104,000 A kg
	8,000						400 g	7,400 kg
	158,000 kg						500 g	8,500 kg
	1,000 kg						40,000	198,000 kg
	2,000						400 g	1,400 kg
	4,000						0	2,000 kg
	18,000						0	4,000 kg
	6,000						2,000	20,000 kg
	15,000						0	6,000 kg
	15,000						5,000	20,000 kg
	15,000						5,000	20,000 kg
	60,000		5,000	6,000			5,000	20,000 kg
	1,000						0	71,000 kg
	38300 A						200 g	1,200 kg
	2,000						0	38,300
							0	2,000 kg

'Feb. 16, 1948.

TO : Capt. Lawrence, Ehime Military Govt. Team.

FROM : Chief of Medicine Sect., Sanitary Dept., Ehime Ken.

THROUGH: Chief of Liaison Section, Ehime Ken.

SUBJECT: ~~Change~~ Report on Anaesthetic for Jan., 1948.

I beg to submit to you a report, subject as above.

1. Quantity of anaesthetic kept stored at the beginning and the end of this month, including the amount received and released during this month:

Local wholesale dealers (see attached paper).

2. Classfication of registered dealers:

Local wholesale dealers:	3	
Retailers ..... :	75	(decreased by 14)
Consumers ..... :	984	(decreased by 52)
Doctor ..... :	749	
Dentist ..... :	216	
Veterinarian .... :	19	
Drug manufacterer :	115	
Experimentist ... :	1	
TOTAL	2,169	

3. Confiscated or purchased as evidence.

a. Port and border area.

Confiscation No.	Place confiscation	Name & age of confiscation	Occupation.	Reason for confiscation	Anaesthetic Name : Qt.	Confiscator	Place now stored	Violation number
None								

b. Other areas excluding above a).

i. Registered persons.

Confiscation No.	Place confiscation	Name & age of confiscation	Occupation	Reason for confiscation	Anaesthetic Name : Qt.	Confiscator	Place now stored	Violation number
None								

ii. Unregistered persons.

None

iii. Total amount confiscated.

None

iv. Anaesthitic purchased as evidence.

None

4. Violation.

a. Registered persons.

None

b. Unregistered persons.

None

5. Decision.

a. Registered persons (inclusive of unconvicted personers).

Decision Number	Occupation Register No.	Name	Decision	Name of court Date decided	Reason for decision	Violation number
	Doctor 133210	MANABE Taketoshi				

6. Toxicosis.

a. Nationality.

	Japanese	Korean	Chinese	Others	Total
Man	68	9	-	-	77
Woman	58	1	-	-	59
Total	126	10	-	-	136

7. b. Classification.

	Toxicosis	Recovered	Unknown	Others	Total
Man	9	24	29	15	77
Woman	6	23	24	6	59
Total	15	47	53	21	136

c. Anaesthetic.

	Morphin	Heroin	Cocain	Phantopon	Others	Total
Man	51	4	1	12	9	77
Woman	42	2	-	14	1	59
TOTAL	93	6	1	26	10	136

d. Increase and decrease.

	Increase		Decrease	
	New case:	From other Prefs.	Death :	To other Pref.
Man	0	0	0	0
Woman	0	0	0	0

7. Theft. (Unarrested) ~~during November~~

None

Total amount of stolen anaesthetic.

None

8. Lost anaesthetic.

None

FUJITA Ichiro
Chief of Medicine Section,
Ehime Ken.

S:K

January 1948

Report of local wholesale

	Item	unit.	Stock as of 1st of the month	IN From central wholesale etc	IN From co... and ret...
Preparations of cocaine	Powdered cocain hydrochloride	g	615	225	
	Cocain hydrochloride for injection 1% (1.0a)	A	274		
Preparations of opium	Powdered opium	g	540	300	
	Tablets of opium (0.03g)	T	6.900		
	Tincture of opium	g	3.000	1.250	
	Camphorated tinctu of opium	g	175		
	Powder of ipecac and opium	g	1.375	2.625	
Preparations of morphine	Powdered morphine hydrochloride (0.005g)	g	664	525	
	Tablets of morphine hydrochloride 1% (1.0cc)	T	100		
	Morphine hydrochlorde for injection 1% (1.0g)	A	8.220	4.500	
	Atropin morphine for injection	A	1.090	1.500	
	Ronpao for injection (1.0a)	A	250		
	Ethyl morphine hydro chloride	g	169	90	
Preparations of codeine	Powdered codeine hydrochloride	g	1.115	2.500	
	Codeine phosphate powder (10%) (0.03g)	g		175	
	Tablets of codeine hydrochloride	T	36.850	1.000	
	Hydrocodeine phosphate	g	230	50	
	Codeine sulphate	g	105		
Preparations of Pantopon	Pantopon for injection 2% (0.6cc)	A	18	175	
	" " 2% (1.0cc)	A	3.000	6.000	

I

Stock of local wholesales in Ehime prefecture (No 1)

Stock as of 1st of the month	IN		OUT		Stock as of the end of the month	Remarks (No good or cast away)
	From central wholesale etc	From consumers and retailers	To consumers and retailers	To others		
615	225	35		205	670	
274				117	157	
540	300			300	540	
6.900				600	6.300	
3.000	1.250			1.225	3.025	
175					175	
1.375	2.625	50		1.225	2.825	
664	525			510	679	
100				100	0	
8.220	5.500			6.600	7.120	
1.090	1.500			1.020	1.570	
250					250	
169	90			59	200	
1.115	2.500	5		1.645	1.975	
	175			50	125	
36.850	1.000			9.200	28.650	
230	50			195	85	
105				40	65	
18	175	24		36	181	
3.000	6.000			4.650	4.350	

January 1948 Report of local wholesales

	Item	Unit	Stock as of 1st of the month	In: From central wholesale etc	In: From
Preparations of pantopon	Pantopon for injection 2% (1.1ª)	A	284		
	Pantopon scopolamin for injection 2% (1.0ª)	A	2.820	500	
	" " 4% (1.0ª)	A		1.000	
	" " 4% (1.1ª)	A	30		
	Pantopon atropin for injection 2% (1.1ª)	A	12		
	Pantopon papaverin for injection 1% (1.1ª)	A	710		
Preparations of Pavinal	Tablets of Pavinal (0.005 g)	T	20		
	Pavinal for injection 1% (1.0ª)	A	50	400	
	Tablets of Pavinal atropin (0.0/3)	T	100		
	Pavinal atropin for injection (1.0ª)	A	170		
Preparations of cocainum	Tablets of Eustaptin (0.05 g)	T	60		
	Eustaptin for injection (1.0ª)	A	5		
	Tropacocain hydrochloride	g	5		
	Tropacocain hydrochloride for injection 6% (1.0ª)	A	120	5	
	" " 6% (1.2ª)	A		20	
	Apomorphine hydrochloride	g	2		
	Tablets of Styptol	T	20		
	Antifusten for injection (1.0ª)	A	700		
	Opistan for injection (1.0ª)	A	350	700	
	Ticoin for injection (1.0ª)	A	10		

of local wholesales in E hime Prefecture (N02)

Stock as of 1st of the month	IN		OUT		Stock as of the end of the month	Remarks (No good or cast away)
	From central wholesale etc	From consumers and retailers	To consumers and retailers	To others		
284				6	278	
1.820	500			1.510	1.810	
	1.000			420	580	
30				18	12	
12					12	
710				270	440	
20					20	
50	400			270	180	
100				100	0	
170				80	90	
60					60	
5					5	
5				1	4	
120	5				125	
	20				20	
2					2	
20					20	
700				50	650	
350	700			420	630	
10					10	

January 1948 Report of local wholesales in

	Item	Unit	Stock as of 1st of the month	In: From central wholesale etc	In: From con and ret
Preparations of poppy hull	Solution of kaflose	g	1.000	500	
	Tablets of opiel	T	31,810		
	Solution of opiel	g	1.500		
	Powdered opinareo	g	2.000		
	Solution of opinarco	g	2.500		
	Powdered alinda	g	16.500		
	Tablets of haburon	T	4.140		
	Powdered Sekicil	g	8.000		
	Tablets of neo-pecton	T	10.400		
	Syn-hi otamin		32.880		
	Tentho		5.700		

t of local wholesales in Ehime prefecture (No 3)

Stock as of 1st of the month	In: From central wholesale etc	In: From consumers and retailers	Out: To consumers and retailers	Out: To others	Stock as of the end of the month	Remarks (No good or cast away)
1.000	500				1.500	
314.810		200		2800	307.210	
1.500					1.500	
9.000					9.000	
9.500					9.500	
16.500					16.500	
4.140					4.140	
8.000					8.000	
104.400					104.400	
32.880					32.880	
5.700					5.700	

1. Object of the current penicillin research.

The existing equipments were constructed for the purpose of carrying out research works on the culturing and refining processes as well as training researchers and their assistants in penicillin preparing processes.

As is clearly described in the table (ANNEX 1) the facilities have never been operated up to their full capacity all at once from the start, but the volume of charge and the charging frequcency per week has been gradually increased step by step to the present status.

While with the view that the substantial production of commercial penicillin could not be carried out by the surface (bottle) culture process (this is the reason why we have been making use of the Erlenmeyer flasks which the company had in hand rather than purchasing flasks by which the space is more efficiently utilized) we had planned the tank (submerge) culture process. Now the construction of penicillin plant is under progress thanks to the kind approval given by GHQ. SCAP and the Ministry of Finance.

However, to meet with the urgent demand of the Ministry of Welfare and also urged by our unquenchable desire to contribute as much as possible to the health and welfare of the people, we decided to operate the existing equipments up to the limit, thus we are exerting the streneous efforts to incresse the charging volume up to 100 liters for daily operation.

For the month of Nov. we have set up our production goal at 1,000 ampules (vials) of 30,000 units content, at the minimum.

2. Re: Penicillin yield.

(A) The yield of the penicillin produced in our plant has not been always satisfactory. The principal reasons for this can be attributed to the facts firstly that it was of the products of the training period for the technicians and workers, and secondly that the facilities were not well completed and fully arranged as they are originally planned. Describing details, there were lack of the refrigerator for the rapid cooling of the cultured broth, lack of filter-press for rapid filtration of broth, lack of the super-cooling refrigerator for the freeze-drying process which prolong the time for the drying process and even make it difficult to maintain the "final rich water" in a frozen state. (the latter case has been temporarily remedied recently by the utilization of dry ice), the inoperable state of the vacuum pump of the freeze-drying process, and lack of measuring apparatus for the high vacuum.

Lately, these aforementioned bottlenecks were almost completely removed and this has brought about a marked improvement of the yield. At present we are exerting further efforts to raise the yield by improving our processing techique.

(B) In determining the yield of the penicillin process, the assay method itself must be brought to the careful scrutiny. In our company, the dilution assay method has been adopted together with the cylinder (cup) method. It is well-known that errors are apt to rise in the dilution method. While on the other, without a reliable standard, penicillin assay by the cup method will hot

give accurate results.

However, as we could not so far obtain standard penicillin from the Sanitary Research Institute of the Ministry of Welfare, were obliged to use our product penicillin as the working standard. The sample submitted to the Sanitary Research Institute of the Ministry of Welfare for preliminary assay test shows following results.

Assay by dilution method

(In our assay room) ---------- 300 units/mg

Assay by cup method

(Sanitary Research Institute) ------- 97.8 units/mg

Consequently by multiplying 0.33 by the results obtained in our assay room we are likely able to get the correct potency. However, to be strict and safe, the multiplying factor of 0.25 instead of 0.33 has been tentatively adopted until we will be able to ascertain by accurate assay with the standard penicillin.

(C) The figures presented in the Annexed Paper No.1 are those calculated by multiplying 0.25 by the results obtained by the dilution assay method (the figure prior to 25th, Setp. is the result as it is obtained by the dilute assay method). As explained in paragraph (B) the multiplication by 0.25 is rather severe, hence on the annexed table No.2 the figure is presented for your reference calculated by multiplying 0.33 as factor instead of 0.25.

Viewing the production program of the penicillin producing companies in Japan during the period from Nov. to Dec. of this

year (reports submitted to Ministry of Welfare) the volume of broth required for the manufacture of one ampule (30,000 units content) of penicillin is around 0.6 to 5 liters. (By the method of surface culture.) Several companies among these are using Penicillium chrysogenum (Q.176) and obtaining 300 units per cubic centimethers therefore the volume of broth required for one ampule (of 300,000 units) could be small. However, inasmuch as several ther companies are using the Penicillium notatum (NRRL 1978 B.2) and other strains which give broths considerably low in potency, the volume of the broth required for one ampule (of 30,000 units) would be large. Taking these facts into consideration, the consumption of 2 to 4 liters of broth for one ampule of penicillin as in the case of our company cannot necessarily be regarded as poor. However, every effort has been and is being exerted to stop using Penicillium notatum (B.2) and to shift it to Penicillium chrysogenum (Q.176) instead.

(D) Although the average broth potency for the month of Oct. was 35 units per cubic centimeters, the culture for one charge in our company is usually finished in 5 days compared to 9 to 12 days required in other companies. Taking this into our accounts the potency of broth can be regarded as tantamount to 70 units in the same period of other companies.

(E) As aforementioned, we could not so far obtain the standard Penicillin for assay by cup method which has been causing us much inconveniencies in checking the reaction in the cultivation,

refining and other processes because of the lack of accurate potency assay. Fortunately by the negotiation with the Ministry of Welfare and the Japanese Penicillin Research Association, it is understood that we be fortunately shared with standard penicillin for assay use. (Expected to be delivered on 6th of Nov.)

3. Re: Raw materials.

(A) Pepton

Pepton is not being used at present, but in view of the experiment that a minor addition of this substance even to the United States synthetic media showed a favorable results, we have decided to use it before long. Monthly consumption of Pepton with the commencement of the operation of the penicillin plant by the tank (submerge) culture method is estimated 250 to 500 kilograms. (For only surface method 50-100 kgs.)

(B) Butyl-acetate

The present consumption of butyl-acetate is minor as we are now refining the penicillin by utilizing active carbon but in case we could acquire a sufficient supply, we are desireous to shift it to the direct extraction by butyl-acetate.

(C) Lactose

Difficult to procure.

4. Re: Equipments

The various shortcoming kindly pointed out by you will be immediately remedied.

5. Re: Disposition of the finished products.

As we had not received the legal assay tests (such as of its sterility, toxicity, pyrogens and etc.) from the Sanitary Research

Institute of Ministry of Welfare, we are strictly refraining from using it on human bodies.

Before long the toxicity and pyrogens test will be entrusted to the Microbiological Research Institute of the Osaka University. Under these circumstances all the penicillin products, except those used for assay sample as mentioned in paragraph 2 (B) and the working standards for the cup method and samples to check refining process, are stored safely in our hands as indicated in annexed table 3.

Chronological Outline of Research on Penicillin Manufacturing Process

Nissin Chemical Co., Ltd.

In Feb. 1944, Commenced study for fungi of good penicillin producing ability.

In Mar. 1944, Commenced experimental research on the penicillin process, principally bacteriological research for a new micro-organism.

In Mar. 1946, Three penicillin producing strains (No.233, G1 and No.176) and one assay test bacterium (Staphylococcus Aureus Terajima) were transferred to us from the Faculty of Agriculture, Tokyo University, and also two assay test bacteria (Staphlococcus Aureus Terajima and St. A. Hestley) from the Faculty of Agriculture, Kyushu University, which enabled us to carry out comparative tests of the isolated strains and their penicillin producing abilities.

In June 1946, Started research on the process of preparing penicillin on an industrial scale.

In Sept.1946, Constructions of a culture room and refining room were completed.

In Oct. 1946, Commenced research on the process of penicillin refining, and in order to supply it with penicillin broths, started to produce 15 to 20 liters of culture per week as our goal.

In Dec. 1946, Received two United States' strains (B2 and Q176) tanks to Docter Fostor, Penicillin Consultant, Supply Division, SCAP.

In Jan. 1947, Completed construction of the culture room of surface (bottle) process capacity of which was 100 liters per day.

In Feb. 1947, Commenced our experimental production of 10 liters per charge and 5 charges per week by the surface (bottle) culture process. Installed apparats for shaking culture.

In Mar. 1947, Applied to GHQ, SCAP through the Ministry of Finance for the approval for borrowing funds (7,000,000 Yen) for the construction of the penicillin plant by tank process.

In Apr. 1947, Started enlargement of experimental production by the surface (bottle) method to the extent of preparing 20 liters per charge and 5 charges a week.

In July 1947, Took primary procedures for an enlargement (to the extent of preparing 70 liters per charge and 5 charges a week) of experimental production by the surface (bottle) culture method.

In Aug. 1947, The application asking for permission for borrowing funds was approved by AG 095 (28 July '47) ESS/AC (SCAPIN 4231-A). Embarked on installation of facilities for preliminary tests by the tank (submerged) method, i.e.. 1 fermenter of 250 liter-size, and also

commenced preliminary construction work of our penicillin plant.

In Sept.1947, Submitted a part of experimentally produced penicillin to Sanitary Research Institute of the Welfare Ministry asking for its potency assay test, and although it was qualified in the dissolving and PH tests, the figures for potency determined by our company by the dilution method was approximately three times larger than the potency assayed by the cylinder (cup) method in the central testing laboratory. (Potency units prior to Sept. 27th is shwon in annexed copies of laboratory's date and receipt book were temporarily corrected as shown within parenthesis.)

In Oct. 1947, Embarked on an enlargement of the experimental production with the aim of treating 50 liters of culture per day.

In Nov. 1947, The installation of the 250 liters fermenter for preliminary research work is to be completed by the middle of this month.

ANNEX 3

C O P Y
o f
R E C E I P T B O O K

Nissin Chemical Co., Ltd.

Date received	Units received	Date prepared	Units withdrawn	Date prepared	Units on hand
(1) (Ca-salt)	64,500 (16,125)	Total units up to June 26			64,500 (16,125)
(1) (Na-salt)	106,000 (26,500)				170,500 (42,625)
June 27	216,000 (54,000)	June 27			386,500 (96,625)
July 1	456,000 (114,000)	July 1			842,500 (210,625)
3	121,601 (30,400)	3			964,101 (241,025)
8	236,225 (59,056)	7			1,200,326 (300,081)
14	520,000 (130,000)	14			1,720,326 (430,081)
18	384,000 (96,000)	18			2,104,326 (526,081)
21	216,000 (54,000)	21			2,320,326 (580,081)
24	190,000 (47,500)	24			2,510,326 (627,581)
27	231,000 (57,750)	27			2,741,326 (685,331)
30	267,000 (66,750)	30			3,008,326 (752,081)
Aug. 3	359,000 (89,750)	Aug. 3			3,367,326 (841,831)
8	282,000 (70,500)	8			3,649,326 (912,331)

Date received	Units received	Date prepared	Units withdrawn	Date prepared	Units on hand
Aug. 12	253,000 (63,250)	Aug. 12			3,902,326 (975,181)
15	153,000 (38,250)	15			4,055,326 (1,013,831)
19	77,200 (19,300)	19			4,132,526 (103,131)
22	373,000 (93,250)	22			4,505,526 (1,126,381)
25	193,000 (48,250)	25			4,698,526 (1,174,631)
29	323,000 (80,750)	29			5,021,526 (1,255,381)
Sept. 3	119,000 (29,750)	Sept. 3			5,140,526 (1,285,131)
5	199,000 (49,750)	5			5,339,526 (1,334,881)
15	58,500 (14,625)	15			5,398,026 (1,349,506)
22	585,000 (146,250)	22			5,983,026 (1,495,756)
23	52,900 (13,225)	23			6,035,926 (1,508,981)
25	17,200 (4,300)	25			6,053,126 (1,513,281)
30	44,300	30			(1,557,581)
Oct. 1	19,100	Oct. 1			(1,576,681)
2	4,820	2			(1,581,501)
3	19,500	3			(1,601,001)
5	136,700	5			(1,737,701)

Date received	Units received	Date prepared	Units withdrawn	Date prepared	Units on hand
Oct. 6	237,000	Oct. 6			(1,974,701)
7	41,700	7			(2,016,401)
8	189,500	8			(2,205,901)
9			373,000 (93,250)	Aug. 22	
			216,000 (54,000)	June 27	Supplied as sample for assay test to the Sanitary Research Institute, Ministry of Health, and also for working standard.
			456,000 (114,000)	July 1	
			359,000 (89,750)	Aug. 3	
			231,000 (57,750)	July 27	
			267,000 (66,750)	30	
			282,000 (70,500)	Aug. 8	* As working standard.
					(1,659,901)
Oct. 10	42,000	Oct. 10			(1,701,901)
11			* 189,500	Oct. 8	(1,512,401)
13	202,000	10			(1,714,401)

Date received	Units received	Date prepared	Units withdrawn	Date prepared	Units on hand
Oct. 14			384,000 (96,000)	July 18	As sample for experiments in the refining process.
			585,000 (146,250)	Sept. 22	
			136,700	Oct. 5	
			237,000	6	
14					(1,098,451)
19	243,000	Oct. 19			(1,341,451)
20	920,000	20			(2,261,451)
21	158,000	21			(2,419,451)
			202,000	Oct. 13	For refining experiments.
			253,000 (63,250)	Aug. 12	Vial broken.
					As display sample.
			19,500	Oct. 3	(2,134,701)
23	57,500	23			(2,192,201)
24	41,500	24			(2,233,701)
25	294,000	25			(2,527,701)
26	157,000	26			(2,684,701)

Date received	Units received	Date prepared	Units withdrawn	Date prepared	Units on hand
Oct. 27	375,000	Oct. 27			(3,059,701)
28	653,000	28			(3,712,701)
29	378,000	29			(4,090,701)
30	320,000	30			(4,410,701)
31	268,000	31			(4,678,701)
Nov. 1	203,500	1			(4,882,201)
2	344,000	2			(5,226,201)
4	300,000	4			(5,526,201)
6	284,000	6			(5,810,201)
7	422,000	7			(6,232,201)
8	1,750,000	8			(7,982,201)
9	568,000	9			(8,550,201)
10	1,040,000	10			(9,590,201)
11			653,000	Oct. 28	
			378,000	29	(8,559,201)

Date received	Units received	Date prepared	Units withdrawn	Date prepared	Units on hand
Nov. 12	1,405,000	Nov. 12			(9,964,201)
14	817,000	14			(10,781,201)

Remarks : Figure in paranthesis shows the revised potency i.e.

(Potency units prior to Sept. 30) X $\frac{1}{4}$

ANNEX 2

Date charged	Volume of broth (liter)	Total powder penicillin (units)	No. of Vials (per 30,000 Units)	Volume broth per vial (liter)
Oct. 1	23	25,470	0.8	27
2	20	6,430	0.2	100
5	35	182,300	6.1	5.7
6	35	316,000	10.5	3.3
7	25	55,600	1.9	13.1
8	35	252,700	8.4	4.2
10	37	56,000	1.9	19.4
13	31	269,000	9	3.5
19	39	324,000	10.8	3.6
24	18	55,330	1.8	10
25	40	392,000	13.1	3.1
26	40	209,330	6.9	5.8
27	45	500,000	16.7	2.7
28	48	870,670	29.0	1.7
29	45	504,000	16.8	2.7

ANNEX 1

Laboratory Date of Penicillin Production

Nissin Chemical Co., Ltd.

Expt. No.	Date of Refining	Culture charged (Liter)	Filtrated Culture for Refining: Volume (Liter)	Filtrated Culture for Refining: Potency * (Units/cc)	Yield: (Units) *	Yield: (Percentage)	Potency * (Units/mg)	Remarks
F - 10	Feb. 12	9	7	20 (5)	24,000 (6,000)	17	113 (28)	* Temporary assay results must be recalculated in comparsion to standard by multiplying by 1/4. Correct units within parenthesis. Assay potency after Sept. 26 are correct.
F - 11	13	8.5	7	20 (5)	5,760 (1,440)	5.7	100 (25)	
F - 12	19	6	4	30 (7.5)	25,000 (6,250)	21	254 (63.5)	
F - 13	25	9	7	50(12.5)	43,200 (10,800)	12.4	370 (92.5)	
F - 14	27	12.3	3.5** (10)	20 (4)	5,300 (1,325)	over 7.1	over 57 (14.5)	
F - 15	March 2	11	8.5	10 (2.5)	25,980 (6,490)	30.5	407 (101.7)	
F - 16	7	13	11	20 (5)	52,000 (13,000)	23.6	122 (30.5)	
F - 17	10	13	9.5	20 (5)	83,600 (20,875)	43.9	260 (65)	