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From: Chief, Naval Technical Mission to Japan.
To : Chief of Naval Operations.

Subject: Target Report - General Medicine and Special Diseases
in the Japanese Navy.

Reference: (a) "Intelligence Targets Japan" (DNI) of 4 Sept. 1945.

1. Subject report, covering Target M-11 and Supplementary
Questionnaire "F" of Fascicle M-1 of reference (a), is submitted here-
with.

2. The report was prepared by Comdr. P.B. Ayres, (MC) USNR,
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RESTRICTED

M-11

**GENERAL MEDICINE
AND
SPECIAL DISEASES IN THE JAPANESE NAVY**

**"INTELLIGENCE TARGETS JAPAN" (DNI) OF 4 SEPT. 1945
FASCICLE M-1, TARGET M-11 AND QUESTIONNAIRE "F"**

NOVEMBER 1945

U.S. NAVAL TECHNICAL MISSION TO JAPAN

SUMMARY

MEDICAL TARGETS

GENERAL MEDICINE AND SPECIAL DISEASES IN THE JAPANESE NAVY

The report lists the available data on the exotic diseases, those peculiar to the Orient. The presence of the "U. S. Typhus Commission" and the "Army Committee for the Investigation of Schistosomiasis" has removed these subjects from the target list, so that, the source of information being naval, the facts reported, figures quoted, and opinions expressed, must perforce apply to the subject matter, chiefly as it has come under the cognizance of Japanese naval medical officers.

The lack of any adequate system for reporting statistics, the difficulty of communication with the mainland, and the character of the average Japanese naval medical field officer all have prevented accurate or recent figures from reaching the Naval Medical Bureau.

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REFERENCES

A. Japanese Personnel Who Assisted in Gathering Information and Documents:

1. Vice Adm. HORIUCHI, (MC) IJN, Director, Medical Department, Bureau of Medicine and Surgery.
2. Vice Adm. HOMMA, (MC) IJN, CO URESHINO Naval Hospital.
3. Lt. Comdr. T. TAKASHI, (MC) IJN, SASEBO Naval Hospital - Bacteriologist.
4. Capt. MURAKAMI, (MC) IJN, TOKYO Naval Hospital - Pathologist.
5. Vice Adm. YASUYAMA, (MC) IJN, CO OMURA Naval Hospital - Bacteriologist.

B. Japanese Personnel Interrogated:

1. All the above.
2. All internists, pathologists and medicalmen in Reference "B" of "Data on Life in the Jungle and on Sea Islands", NavTechJap Report, Index Number M-01.

C. Reports of Other Investigating Committees:

1. U. S. Typhus Commission in JAPAN, Report on Tsutsuga-mushi, and Allied Rickettsial Diseases in JAPAN and KOREA.
2. Periodic Report on the Activities of the Committee for the Technical and Scientific Investigation of Japanese Activities in Medical Sciences - Chief Surgeons Office GHQ, SCAP, AFPAC (Advance Echelon).
3. Monthly Reports, Public Health and Welfare Section, GHQ, SCAP.

LIST OF ENCLOSURES

- (A) Translation of Japanese Reply to Questionnaire on the "New Staining Method for Amoeba", and "Treatment for Amoebic Dysentery".
- (B) Pertinent Reports of the Army Committee for the Investigation of Japanese Medical Sciences.
- (C) List of Documents Forwarded by NavTechJap to NMRI, BETHESDA, MD.

INTRODUCTION

The Japanese Naval Medical Corps, dealing chiefly with combat casualties, and the common illnesses of their personnel ashore, have had little experience in the past with the exotic diseases. Although the Navy furnished certain "landing parties" for operations in the south and south-west Pacific, and sailed those waters, its personnel remained chiefly afloat, or in large naval bases.

The first problem that was met was the one posed by malaria, and standard treatments were devised, and disseminated "to all ships and stations" from the Medical Bureau. (See "Pharmacology and Malariology in Japan - Civilian and Naval", NavTechJap Report, Index Number M-12.) As far as the other exotic diseases went, the "refresher" course the naval medical officer received in the Naval Medical School in his admission to the Navy, was presumed to have prepared him adequately for the diagnosis and treatment of such. The full course was given before the necessity for specialization in tropical diseases arose - i.e. - before Japan invaded southern waters. By the time infection with such organisms became more than a remote possibility the urgent need for naval medical personnel due to the expanding personnel of the Navy, and the increasing casualties, caused the course to be shortened. Nowhere during the war was a post-graduate or special course in tropical disease offered the Japanese naval medical officer. Those who claimed to have experience in the diagnosis and treatment of such conditions acquired it from overseas duty.

All interrogations seem to confirm this, as the medical officers in JAPAN obviously were unable to contribute much knowledge or information on the subject. The interrogator was constantly referred to the "Naval Medical School" in TOKYO for replies to questions. The medical officers who might have had experience were (1) still abroad in base hospitals, in SINGAPORE, BATAVIA, RABAU, etc., or (2) were unavailable, having been aboard the ships of the Navy, most of which had not returned from one-way cruises. Even the Medical Bureau and the Statistical Department had not concerned themselves with problems that were of a potential nature and had no research projects or new information ready for an emergency.

The pressure of discharging their routine duties, in examinations, dispensaries, sick bays, and hospitals, was such that no time was left for anything but acute problems, which were handled as well as possible if and when they arose.

THE REPORT

1. Tsutsuga-mushi - Having no contact with this strain of scrub typhus the Naval Medical Corps regarded it as an interesting but irrelevant problem. All internists and bacteriologists agreed they had never seen a case "in the service". The sum total of their knowledge seemed to be of an academic, half remembered nature. The consensus of knowledge and opinion was:

a. The incidence of the disease has become progressively lower, due to special efforts on the part of the Public Health Officials in the infected areas, working through the local physicians, etc. A public education program on how "to avoid infection", utilizing lectures, newspaper articles, and radio broadcasts has educated the public to the dangers of the disease. The last figures produced showed only seven deaths in JAPAN from the disease for 1944.

b. The current opinion as to the disease vector was that the "aka mushi" (red mite) is the vector.

c. Treatment was agreed to be entirely symptomatic, and supportive. No specific therapy had been developed, or was known.

d. The infected areas of the home islands were given as chiefly around and in AKITA and NIIGATA Prefectures.

e. The danger to an occupying force would be only problematical, as those contracting the disease were laborers or farmers in the river valleys near the coast, and the disease was seasonal.

f. The control consisted in avoiding infected areas, using insect repellant and protective clothing in the area, and frequent bathing.

As Tsutsuga-mushi disease is a non-reportable one, even the statistics of the Public Health Bureau did not give any added information. Professor KAWAMURA of the NIIGATA Medical College was believed to be the foremost Japanese authority on the disease.

Very adequate coverage of this problem has been made by the U. S. Typhus Commission in JAPAN, whose reports are filed in the "Chief Surgeon's Office" file of GHQ, SCAP and which will also be available in the office of the Surgeon General, WASHINGTON, D. C.

The situation in other countries, i.e., KOREA, was quoted as being "obscure".

2. Schistosomiasis - This disease was also regarded as a rare occurrence, although the troops in CHINA were reported to have contracted it in small numbers. None of the personnel interrogated or contacted had ever seen a clinical case. To most it was a text-book curiosity. Nothing was added to the present knowledge of distribution, symptomatology, diagnosis or treatment.

3. Japanese "B" encephalitis occurred, as has been reported, but also was a "non-reportable disease", hence naval incidence statistics were not available. A vaccine had been prepared and was in use, chiefly by the Japanese Army Medical Corps. (A report on this is listed in Appendix "A" NavTechJap Report, Index Number M-AB.) The Civilian Public Health records showed 400 cases for JAPAN in 1942 with no figures available from then on. It was agreed that the disease was 20% fatal, no specific treatment had been developed, and that it had not troubled the Navy. (It is believed by the NavTechJap Medical Section, that "B" encephalitis vaccine was captured on OKINAWA, used by Military Government medical officers, and reported on.)

4. Cholera - Again there had been no cholera problem in the Navy during the course of the war. The probability of a few cases having developed in HONGKONG and SHANGHAI among naval personnel based ashore was admitted. No cases were reported in the homeland, or the naval personnel. Diagnosis and symptomatology as given was academic, and no therapeutic procedures were recognized apart from supportive measures which did not include adequate fluid-replacement procedures.

5. Typhus - Treatment was entirely symptomatic. The diagnosis was academic and nothing of interest was obtained. (See "General Medical Statistics, Japanese Army and Navy, NavTechJap Report Index Number M-I.) In spite of this report, several civilian reports had been published by Japanese workers on typhus (see Reference "C", Section 2, this report).

6. Plague - No cases of plague had been known of or reported in JAPAN, either in the military personnel, or in the civilian population. It was believed the troops in CHINA might be exposed to infection, but no case, or statistical reports had been received.

7. Epidemic jaundice - Infectious hepatitis. The naval incidence of infectious hepatitis was reported as the following table shows.

The Incidence of Cases of Infectious Hepatitis (Jaundice)

<u>Year</u>	<u>Rate per 1000 men</u>
1940	9.97
1941	10.42
1942	8.54

A serum for treatment of WEIL's Disease was available, and is referenced in "Bacteriology and Chemistry" NavTechJap Report, Index Number M-10.

Some civilian work on the isolation and culture of the virus of infectious hepatitis is referenced under Enclosure "B" of this report.

8. Pneumonia, influenza, paratyphoid, typhoid, and dysentery occurred in the Navy. The first two being non-reportable, their incidence was unknown. "Medical Statistics" (referenced in Paragraph 5) gives the available data. Routine diagnostic and therapeutic procedures were employed with the few exceptions noted below.

a. Pneumonia - Diagnosis was by direct sputum examination, no typing being standard procedure in the Navy. On visual, morphological recognition of the bacteria, sulfapyridine therapy was begun, parenterally in grave cases, orally in the milder ones, and continued until recovery. As noted blood concentrations could not be made and were not attempted. Sulfa reactions, particularly nausea and vomiting, were common with this drug.

b. In the eberthella infections it was claimed that an early diagnosis was frequently made by scarifying the "rose" spots, and culturing the serum obtained. It was claimed that this was standard procedure in the Navy, and that positive results could be obtained seven to ten days before the Widal reaction. Treatment was routine, appropriate diet, bed rest, etc., being the basis of the therapy. The sulfa drugs had been tried and abandoned.

9. Bacillary Dysentery - The dysenteries were among the commonest intra-service diseases. SHIGA and FLEXNER's bacillus were reported as the common strains, with Bacillus "Y" frequently appearing. Treatment was as follows: "Large doses of sulfaguanadine, or sulfonamid with sodium bicarbonate in the early stages. Two to three days later, if the stool is good, 1.5 gm. three times daily, is to be given. Light cases are given 1.5 to 3.0 gms. from the beginning. During this treatment a laxative or an absorbent is not to be given. Early, (within five days from the beginning of the sickness) 20-80 c.c. of serum may be used."

10. Amoebic Dysentery - The rate in the Navy was reported as very low, as the following table indicates. Treatment was administered as directed below. Diagnosis was by the usual laboratory identification. The Japanese Navy Bureau of Medicine and Surgery reply is given verbatim.

Amoebiasis:

a. The number of amoeba dysentery for the first seven months of 1945:

Jan.	Feb.	March	April	May	June	July	Totals	Ratio per 1000 of Forces
277	176	197	116	71	16	0	855	1.53

b. The number of cases of amoeba dysentery:

Year	1939	1940	1941	1942	1943	1944
Cases	18	63	120	662	1189	1202
Ratio per 1000 men	0.11	0.32	0.45	2.01	2.16	1.85

c. Treatment for amoeba dysentery:

(1) Emetin-Treatment.

Large doses of emetin at preliminary stages found satisfactory, 0.04 gr. (4% 1 c.c.) of emetin subcutaneous or intramuscular injected for four days, then three days of rest, then four days of injection. After observation for two weeks, reinjected four to six times, if necessary. It is usual to give a laxative during treatment in order to avoid cyste-making.

(2) Quinojodin-Treatment. (Quinojodin corresponds to Yatren.)

Internal use; first day, three times daily, each time 0.25 gr. after meal. Second to fifth day, three times daily, each time 0.5 gr. Then four days of rest. Sixth to seventh day, three times a day, each time 0.75 gr. Instillation at the same time.

(3) Calbamisín-Treatment. (Calbamisín consists of Arsen.)

This treatment is effective for cyste. Internal use; taking 0.75 gr. three times daily for ten days. Instillation at the same time.

(4) Hydrolícholin-Treatment.

Every day or every other day taking one c.c. During this treatment a laxative is given at the same time.

11. Leishmaniasis The Bureau of Medicine and Surgery, reported that "We have had only one case of kala-azar and have had no experience with cutaneous lesions. To our regret we have lost all data concerning kala-azar so we cannot furnish report in detail". Certainly no special work had been done in this field, and for treatment, drugs, dosage, etc., the standard works on tropical medicine were referenced.

12. No data on the incidence of the various diseases in KOREA was available, either as to epidemic, quarantined areas, morbidity or mortality figures.

13. The following figures were obtained from the Japanese Bureau of Health, covering the period Jan. 1, 1945 to Oct. 13, 1945:

Total Cases Reported in JAPAN, HONSHU, KYUSHU and
HOKKAIDO

<u>Disease</u>	<u>No. of Cases</u>
Diphtheria	50,877
Dysentery	57,729
Epidemic Meningitis	3,642
Paratyphoid Fever	5,955
Scarlet Fever	1,737
Typhoid Fever	28,787
Typhus	1,900
Smallpox	1,318

14. The Japanese Navy had been in such a disorganized state during the past year, as far as clerical work and statistics were concerned, that practically no reports had been forwarded to the Bureau of Medicine and Surgery in TOKYO. The specific request for data was answered, and is found in "General Medical Statistics, Japanese Army and Navy, NavTechJap Report Index Number M-I.

15. The specific questions contained in Supplementary Questionnaire "F" of Fascicle M-1 of "Intelligence Targets JAPAN" are answered below:

a. Noted in Paragraph 2 "Bacteriology and Chemistry in the Japanese Navy", NavTechJap Report, Index Number M-10.

b. These diseases, save for Japanese "B" encephalitis are almost unheard of in the Japanese armed forces. Since they are seasonal, the time of year of invasion would determine the incidence. However, the limited number of cases among Japanese civilians living in the areas of greatest danger, is the best evidence that all things being equal, they would not constitute a problem. During a year when "epidemic encephalitis" was virulent, and in epidemic form, this might create a definite hazard.

c. For the treatment of these two diseases, the standard medical texts on tropical diseases are referenced.

d. The diagnosis of schistosomiasis is made by a history of exposure in an infected area, by clinical symptoms, and the discovery of the ova in stool or urine. Tsutsuga mushi is diagnosed by the time of year (spring or early summer), the place of exposure (area of mite infestation), the clinical nature of the illness, the appearance of the eruption, and the absence of serological and bacteriological findings of infection - i.e. exclusion.

e. Guam blister as such was denied as having been encountered.

f. See "Podiatry in the Japanese Navy," NavTechJap Report Index Number M-03. The common fungicides, salicylic acid, alcohol, mercuric salts, ointments, etc., are employed. X-ray therapy is used on the advice of a dermatologist for stubborn cases.

g. Tropical ulcers are treated with sulfa drugs externally and internally, bed rest, exposure to sun light, wet boric dressings, painting with mercurochrome, mercuric hydro-cyanide and expectant treatment.

ENCLOSURE (A)

Translation of Japanese Reply to Questionnaire on the "New Staining Method for Amoeba" and "Treatment of Amoebic Dysentery" - 13 June, 1945.

NEW AMOEBA STAINING METHOD - ONO MITSUOI. Chemicals.

- A. 10% Silver Nitrate (10 AgNO₃ H₂O 100).
- B. Physiological saline solution.
- C. 70-90% Alcohol.
- D. Methanol.
- E. Giemsa stain.

II. Staining Method.

- A. Smear a this layer on standard slide.
- B. Dry at room temperature.
- C. Fill up the dye bottle with the 10% solution of silver nitrate, then immerse and soak the slide from 10 to 20 minutes. (Again fully load.) (TN: This probably means to repeat entire process again.)
- D. Wash with physiological solution. Once again add the physiological solution to a fresh pestle, immerse the slide for five minutes. (Again fully load.)
- E. Washing - Wash thoroughly in running water, for about five minutes.
- F. Drain water off, then fix. After about three minutes in a 70-90% alcohol solution, drain off for about five minutes with methanol, then fix.
- G. Drying - Dry at room temperature.
- H. Staining - Stain for 20-30 minutes with a dilute solution of Giemsa stain. (1 c.c. 1 drop of Giesma's stain.)

III. Care in Staining.

- A. The object glass is kept clean as is the blood smeared slide.
- B. The silver nitrate should be kept, as much as possible, in a brown bottle and a cool dark place at all times, except when being used.
- C. The slide should not be stained if a month old.
- D. Sunlight has a coloring effect on the amoeba if exposed during neutralization of the slide with the saline solution or when using the silver nitrate. The coloring results are poor if the dyeing is carried out in a brightly lit place. Direct, strong sunlight should be guarded against in the tropics. Strong, direct rays have a yellowing effect.

ENCLOSURE (A), continued

IV. Coloring Process.

- A. By using the silver nitrate on the slide a light brownish yellow color is obtained. •
- B. When the saline solution is used the coloring is somewhat thickened.
- C. Although there is some advantage in having contrast in staining with Giesma's stain generally there is a light brownish color shown.

V. Microscopic Examination.

The field shows up a light yellowish purple, and the protoplasm of the amoeba appears ash white or light yellowish brown. In rare instances the general long form will show up as a light purple. The nuclei will be stained a scarlet color with the application of eosin. The erythrocytes in the field and the erythrocytes which have been devoured by the amoeba will appear as a light yellowish red. Although the color of the leucocytes and nuclei are the same, it is easy to discriminate the difference by the structure of the body and the small vacuole forms. Even though it is unnecessary to discriminate between the usual long forms and endamoeba coli, it is necessary to exercise care so as not to make a misconception between the basic coloration of the most recent vacuoles of endamoeba histolytica and the usual long forms of endamoeba coli.

TREATMENT FOR AMOEBIC DYSENTERYI. Medicinal Therapeutics.

With acute cases emetine hydrochloride is principally used.

- A. If a small dose of emetine hydrochloride is given from the very beginning the amoebae become emetine resistant; therefore one must give large doses early. However, with certain peculiar physical types, poison symptoms will arise, (bad heart, anginal pain, low blood pressure, vomiting, etc.), therefore, care must be taken.

Doses of 0.04 (4% 1.0 c.c.) can be given twice a day or intramuscular injections can be given four days continuously, then three days rest, then repeat for four days. Make an examination of the results after two weeks. It is important to repeat the intramuscular injections four to six times.

During the administration of emetine a physic should be given (magnesium sulfate) in order to guard against the formation of cysts.

- B. Even though iodoquinine (Yatren-Bayer, JAPAN-made pyroform-yapiol) is given to both acute and chronic cases, the over-all results is to weaken the effect of the emetine and result in no effect whatsoever.

Taken internally - First: first day 0.25 g. taken after each meal. Second: second to fifth days 0.5 g. three times a day; then four days rest. Third: sixth to seventh days 0.75 g. three times a day. (The emetine should be given as a pill as much as possible.) Bowel injection - (enema) 0.5-3.0% solution of 30 c.c. of opium tincture. Twenty to 30 drops given as a high enema for a week continuously. Before this the bowel should be washed or irrigated.

ENCLOSURE (A), continued

C. Calbamitin (カルバミチン) (an arsenic product)

When this drug is used with chronic cases the results are conspicuous. Used internally 0.75 g., total for one day divided three times, used for 10 days continuously. Bowel injection - 2.0 g. mixed with two percent sodium bicarbonate once a day for five days. During the enema treatment this medicine should not be taken internally. The bowel should be washed before the enema.

D. Hidrolcolin (TN: ヒドロコロリン) Treatment - (Melysin plant extract 1.0 c.c. mixed with hidrolcolin chloride 0.05 g.).

Every day or every other day 1.0 c.c. continuously. During this treatment magnesium sulfate or some equivalent physic should be given.

1. Symptomatic treatment - hygienic care of food given, quiet, maintenance of abdominal temperature, and the administering of vitamins B and C.

2. Combined symptoms: If you do not give radical treatment to acute cases they easily become chronic and a serious outbreak of suppurating hepatic uclers will occur at the same time. If this does occur an operation should be done only according to the results of the emetine treatment.

ENCLOSURE (B)

Pertinent Reports of the Army Committee for the Investigation of Japanese Medical Sciences - Chief Surgeon's Office, GHQ, SCAP.

1. Typhus Innoculations, NRC, TOKYO - AON.
2. Japanese "B" Encephalitis Vaccine and Epidemiology - Prof. MIYAZAWA, IDI, TOKYO - ASO.
3. Infectious Hepatitis Virus Isolation and Cultivation IDI, Dr. KITAOKA, TOKYO - ASO.
4. Schistosomiasis Studies, KITASATO Institutes for Infectious Diseases TOKYO - ASO.
5. "A New Textbook of Tropical Medicine" Y. MIYAZAWA (Ed) (forwarded to the Surgeon General's Office from the above Committee).
6. Typhus Fever #51 of Section VII, titled "Public Health and Welfare".
7. Translation of Japanese Biologicals, TOKYO Imperial University, Infectious Disease Institute.
8. Type Species for Classification of Dysentery Bacilli (Appendix "A", Part I - ASO).

ENCLOSURE (C)

List of Documents Forwarded to NMRI, BETHESDA, MD.

NAVTECHJAP DOCUMENT NO. ND 10-7501. 3 Annex #1

25 April 1945 Medical Affairs II Secret #7
"Preventive Measures Against Eruptive Typhus"

4 June 1945 Medical Affairs II #35
"Diagnosis of Eruptive Fever"

6 July 1945 Medical Affairs #56
"Methods of Prompt Diagnosis of Eruptive Fever"

ND 10-7501. 8 Annex #2

"Important Skin Diseases in Wartime"