เอกสาร

ความร่วมมือทางการแพทย์กับต่างประเทศ

- Training in the medical sciences / usom
- Dr. Lalla Iverson by American registry of geographic pathology
- Dr. George Crile by Cleveland clinic
- Dr.Ben Eiseman by Veterans administration hospital
- W.J. Kool by Commonwealth Dental Supply
- Dr.Hartwell Harrison by Peter bent brigham hospital
- Dr. Gortrude J.Jones by Cristian medical college hospital
- Ortho pharamaceutical limited
- Dr.Charles L.Leedham by Cleveland clinic
- Dr. W.J. Kolff by Cleveland clinic
- Us component,Seato medical general laboratory

พ.ศ. 2498 - 2505

(14) สน 1.2/4.4 - 4.11 หน้าที่ 100 หน้า

เอกสารส่วนบุคคล ศาสตราจารย์นายแพทย์เสม พริ้งพวงแก้ว

สบ 1

3/4.4 ตำรับตำราทางทันตแพทยศาสตร์ต่างประเทศ (ชื่อเรื่อง)

W.J. Kool ตายบริษัท Commonwealth Dental Supply

พ.ศ. 2493

จำนวน 1 **แผ่น**

แฟ้มที่ 10

กล่องที่ 2

TELEPHONES:
B[illegible] 5 lines)

SOLE AUSTRALIAN AGENTS FOR
XYLOCAINE
MANUFACTURED BY ASTRA, SWEDEN

P.O. BOX 1145 P
TELEGRAMS: "COMDENTCOY"

COMMONWEALTH DENTAL SUPPLY

DENTAL EQUIPMENT
AND SUPPLIES

Coy. Pty. Ltd.

TOWNSVILLE
FLINDERS STREET

SYDNEY
206 CASTLEREAGH STREET

MELBOURNE
52-54 COLLINS STREET

HOBART
ELIZABETH STREET

CITY BUILDINGS
EDWARD STREET
BRISBANE

WJK/vj

14th September, 1955.

Dr. Sem,
Superintendent,
Women's Hospital,
BANKOK....THAILAND.

Dear Dr. Sem,

I trust that, since our conversation at the Medical Congress in Sydney, you have found a Medical Supply House which will supply you with Xylocaine products.

If not, please let us know, and in that case we shall be happy to send you anything you require.

The slightly higher price caused by the extra freight charge is well compensated by the outstanding qualities of Xylocaine products.

With kind regards,

Yours sincerely,

W. J. Kool
Xylocaine Department.

Use JELENKO GOLDS

เอกสาร

ความร่วมมือทางการแพทย์กับต่างประเทศ

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สบ 1

2/4.5 ความร่วมมือทางการแพทย์กับต่างประเทศ (ชื่อเรื่อง)

Dr. Ben Eiseman จาก Veterans Administration Hospital

พ.ศ. 2498

จำนวน 2 แผ่น

แฟ้มที่ 10

กล่องที่ 2

VETERANS ADMINISTRATION
HOSPITAL
1055 CLERMONT STREET
DENVER 20, COLORADO

September 6, 1955 YOUR FILE REFERENCE:

IN REPLY REFER TO:

Dr. Sem Pring-puang-geo
Women's Hospital
Bangkok, Thailand

Dear Sem:

What a surprise to hear from you from Austraylya. Blime, but you cotes must be having a whirl! I was highly amused at your comments as to the exhibits but I am sure you had lots of fun seeing the fellows down under.

Your two nurses arrived last week and we put them up temporarily in the hospital until we can find them suitable quarters. The girl working in anesthesia is already under the care of my very capable anesthesiologist, Dr. Fred Brown. I am certain that we can give her a good year. The girl in illustration happened to hit us at a time when we are arranging an exhibit at this hospital for the local medical society and I think she will learn a great deal. If you have any particular program in mind for medical illustration please let me know. Mr. Jack Fason, who is in charge of this department, intends to give her instruction in operating room photography, photography of gross pathology specimens, photomicrography, setting up of exhibits, making of slides, etc. I was out of town giving some papers in Kansas City and Colorado Springs last week on their arrival so I have not as yet had a chance properly to welcome them but I will take care of that today and we will, of course, have them over to our house this week.

I have made arrangements for Commander McGonagle to present Dr. Nitya with some booklets that I think will help him in his previous request concerning medical combat and field practice. You can tell him the best way to learn is to tell the Navy to call me over for a four week tour of duty as a reserve officer.

At a recent meeting I met a fellow physician who had just come from a trip around the world and who mentioned that he had stopped in Bangkok and asked whether I had ever been to the Women's Hospital there! I told him I not only had been there, but had almost helped build it and was the American post-graduate division of same. Your fame is truly an international one.

If you have time let me know what happened at Siriraj in the choice of a professor. If Udom got it (and I assume he did) did Phuang, Kasarn and the others resign, inasmuch as they were senior to Udom. I certainly hope not.

An inquiry by or concerning an ex-service man or woman should, if possible, give veteran's name and file number, whether C, XC, K, N, V, H, RH, RS, or loan number. If such number is unknown, service or serial number should be given.

Mary and the kids join me in wishing you and your family the best.

Sincerely,

Ben

Ben Eiseman, M. D.

เอกสาร

ความร่วมมือทางการแพทย์กับต่างประเทศ

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สบ 1

2/4.6 จดหมายโต้ตอบกับแพทย์ที่ต่างประเทศ (ชื่อเรื่อง)

Dr. Hartwell Harrison และ Peter Bent Brigham Hospital

พ.ศ. 2498 - 2514

จำนวน 11 แผ่น

แฟ้มที่ 10

กล่องที่ 2

J. HARTWELL HARRISON, M. D.
PETER BENT BRIGHAM HOSPITAL
BOSTON 15, MASSACHUSETTS

October 21, 1955

Dr. Sem
Women's Hospital
Bangkok, Thailand

Dear Dr. Sem:

Dr. Harrison has just written to this patient, who is with the Bank of America in Bangkok, to drop by and see you to give you his regards and to ask your opinion on his condition.

I hope everything is going well with you since we last saw you.

With kindest regards,

Sincerely yours,

Alice C. Cleary

Alice C. Cleary
Secretary

J. HARTWELL HARRISON, M. D.
PETER BENT BRIGHAM HOSPITAL
BOSTON, MASSACHUSETTS 02115

Aug 25, 70

Dear Dr. Sam Prumpsoungkaew:

There is no adequate way for me to express to you the appreciation of Sir and myself for all you did for us. It was a great pleasure and honor to visit your hospital and to meet all of the staff. I am sending a copy of Campbell's Urology 1970 edition which I helped to edit.

J. HARTWELL HARRISON, M. D.
PETER BENT BRIGHAM HOSPITAL
BOSTON, MASSACHUSETTS 02115

This is sent in honor
of Dr. Saw to the
Women's Hospital of
Bangkok.

Sir and I loved
meeting all the members
of your wonderful
charming family and
shall look forward
to entertaining you in
Boston in the future.
I shall look up your
son the first time I
go to Cleveland and
hope that he can

J. HARTWELL HARRISON, M. D.
PETER BENT BRIGHAM HOSPITAL
BOSTON, MASSACHUSETTS 02115

come to visit us here.

We enjoyed our trip to your land all the more because of your many attentions and plans for us. We would like to write to thank your secretary and the Dean of Nurses who took us shopping and was so good to us.

Lis joins in best regards and thanks to Mrs. Sen.

Gratefully
Hartwell

HARVARD MEDICAL SCHOOL

DEPARTMENT OF SURGERY

DIVISION OF UROLOGY

J. HARTWELL HARRISON, M. D.
Elliott Carr Cutler
Professor of Surgery

Peter Bent Brigham Hospital
721 Huntington Avenue
Boston, Massachusetts 02115
734-8000

December 15, 1971

Dr. Sem Prinkpoungkaew
Bangapi Osoth
103 Sukumvit Road
Bangkok, Thailand

Dear Dr. Sem and family:

We are so grateful for your very nice card and for the message.

We are pleased that very close friends of ours, Dr. and Mrs. Walter St. Goer, will be in Bangkok on 21 January 1972 -28 January 1972. They will be visiting Dr. Michael Stewart at the Rockefeller Foundation and Medical School in Bangkok. Dr. St. Goer is on the staff of Massachusetts General Hospital and also his wife, Nan, is a physician. Her father was Professor of Architecture at Yale University where Barney went to college. I have asked them to call you while in Bangkok hoping that they could have a visit with you. I'm certain that you enjoyed seeing Barney and Helga this summer. I have not seen them since their return but hope to before long.

Sis joins in kindest regards and best wishes to you for Christmas and the New Year.

Sincerely,

Hartwell

J. Hartwell Harrison, M.D.

JHH:djg

J. HARTWELL HARRISON, M. D.
PETER BENT BRIGHAM HOSPITAL
BOSTON, MASSACHUSETTS 02115

February 3, 1971

Dr. Sem Pring-puang-geo
Secretary of the Thai Section
International College of Surgeons
Women's Hospital
Bangkok, Thailand

Dear Dr. Sem:

How nice to hear from you and we are so glad that you received the card. I have had correspondence with the young man who is at the University of Dublin who was so kind in entertaining us that wonderful afternoon in Bangkok.

The third edition of UROLOGY was given to the Women's Hospital in honor of Dr. Sem and I hope that the Saunders Company made this clear when they sent it. If they did not I shall immediately correct it.

Sis joins me in kindest regards to all of your family and many thanks for a wonderful time. We shall look forward to seeing you when you next come to this country. Please have your son come to see us in Boston.

Sincerely,

Hartwell

J. Hartwell Harrison, M.D.

JHH:djg

Louis J. Mulkern P.B.B.H. #4H816

This 35 year old man was seen June 11, 1955 because of urethral discharge occurring intermittently for three to four months. This started following a severe upper respiratory infection at Bangkok in the winter of 1954. Infection of the prostate was demonstrated later in London which was treated with sulfonamides and aureomycin. Cultures initially yielded no growth. There has been no stigma of tuberculosis.

On physical examination the patient was well developed and well nourished. The heart, lungs and abdomen revealed no abnormal findings. Blood pressure 120/80. No distant foci of infection were found and there was no history of chronic sinusitis, or of oral or dental infection. The prostate was found to be moderately enlarged, firm and gentle massage yielded no secretion at the first visit. Urine contained clumps of leucocytes. A culture of the urine yielded no growth at this time and subsequently a growth of staphylococcus aureus hemolyticus which was sensitive to chloromycetin 2.5 mcgm/ml and bacitracin. The patient was given chloromycetin and gantrisin. Ten days later the urine showed no leucocytes, no protein, no sugar and the culture again yielded no growth.

I last saw him on July 22, 1955 and he was subsequently seen by my associate Dr. H. P. Brown on August 4 at which time there was a watery discharge at the meatus showing only an occasional leucocyte and epithelial cell. No trichomonas was found in the smear and medication was shifted to erythromycin 100 mgms. four times daily. Urine showed 5-10 leucocytes.

August 9 medication was changed to chloromyetin 250 mgms. 4.i.d. August 16 he showed definite improvement from the previous regime and was changed to gantrisin. The watery discharge at the meatus continued, indicating the patient's prostatitis and posterior urethritis though still present was obviously improving because of the minimal evidence of infection present. August 30 still some watery discharge, asymptomatic otherwise.

September 9 the patient had used alcohol and had had a definite flare-up. The smear showed many leucocytes though the urine was essentially negative.

Intravenous pyelogram which I obtained originally July 20, 1955 showed the right renal shadow clearly outlined, the left was partially obscured by gas. There was no evidence of urinary or prostatic calculi. Excretory urograms showed prompt excretion from each side with the outlining of normal appearing collecting structures on both sides. The shadow of the urinary bladder was normal.

It is my impression that this patient has a fairly resistant but not severe chronic suppurative prostatitis and posterior urethritis. It is also my opinion that therapy at no time has been maintained continuously long enough in this case to clear up infection. Also it is, I believe, madatory that the patient completely avoid the use of alcohol for the next six months at least. If he does not this infection will be perpetuated. It will also be desirable that his wife be examined again for evidence of trichomonas.

J. Hartwell Harrison, M.D.

J. HARTWELL HARRISON, M. D.
PETER BENT BRIGHAM HOSPITAL
BOSTON, MASSACHUSETTS 02115

July 7, 1970

Dr. Sem Puing Puang Geo
Women's Hospital
Bangkok, Thailand

Dear Dr. Sem:

After all these years I am on my way to Bangkok via Tokyo and Hong Kong. Many things have happened since we had the pleasure of your visit in Boston more than fifteen years ago. We will be in Bangkok July 27 and will be leaving there on July 30 to return to Tokyo.

As you probably know Barney Crile lost his wife and has subsequently remarried. My new wife is accompanying me on this trip and is looking forward to meeting you. We would like very much to see you if it is possible on such short notice, for which I apologize.

With kindest regards,

Sincerely yours,

J. Hartwell Harrison

J.Hartwell Harrison, M.D.
Elliott Carr Cutler
Professor of Surgery
Harvard Medical School

SIS HARRISON

JHH:C
Signed in Dr. Harrison's absence

P.S. We will be staying at the Narai Hotel

Program of Visiting Bangkok

for

Dr. & Mrs. J. Hartwell Harrison

****

July 27, 1970 Arriving Bangkok JAL Flight No. 713 ถึง 14.20.

Staying at the Narai Hotel

Chinese Dinner

July 28, 1970 Morning - Floating Market (Take tour from Hotel)

Lunch - Women's Hospital

Afternoon - Visit to Women's Hospital and lecture

13.00 on Renal Transplantation

14.00. - Visit to Tim's Land

Dinner - At home

- Movies

July 29, 1970 Morning - Temple tour

Lunch - Manecya

Afternoon - Shopping - Mrs. Saiyud

- Thai silk (Jimthompson)

- Thai Celadon (Mrs. North)

- Naraipan

Dinner - Sukothai Rm. Dusit Dance Hotel

July 30, 1970 Departure

****

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สบ 1

2/4.7 ความร่วมมือทางการแพทย์กับต่างประเทศ (ชื่อเรื่อง)

Dr. Gertrude J. Jones กับ Critran Medical college Hospital

พ.ศ. 2500

จำนวน 19 แผ่น

แฟ้มที่ 10

กล่องที่ 2

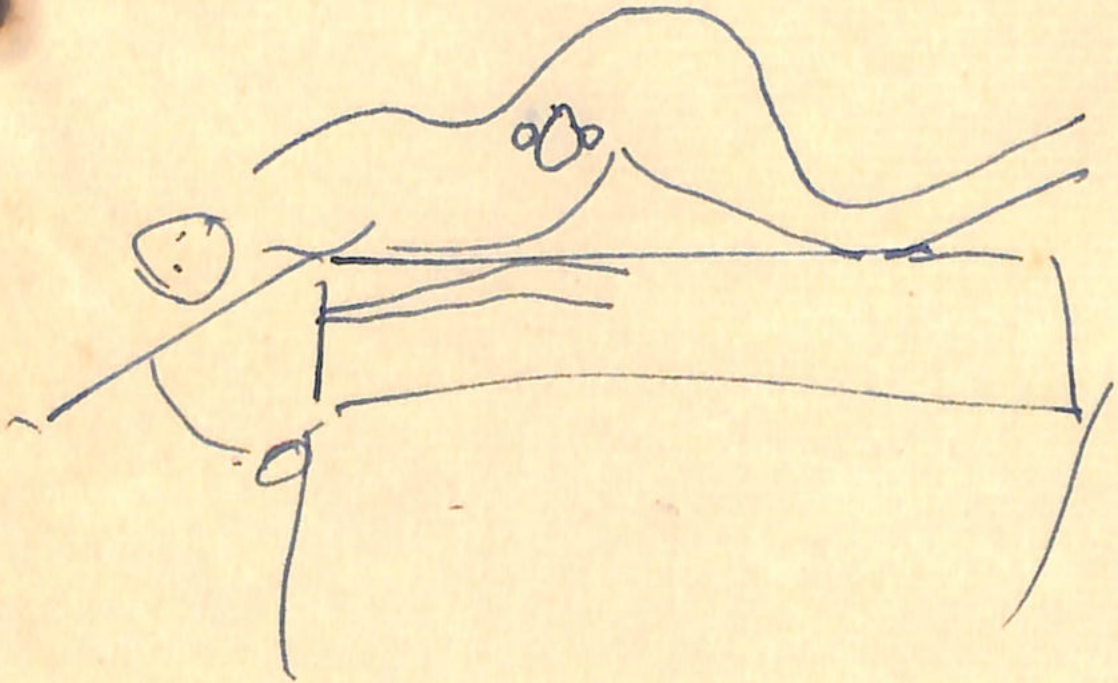
Northwestern Univ Med. School 1917–1957
asso Prof. Emeritus – O. & Gyn.
Michael Reese Hosp 1916–57
Senior Attend. O. & Gyn.

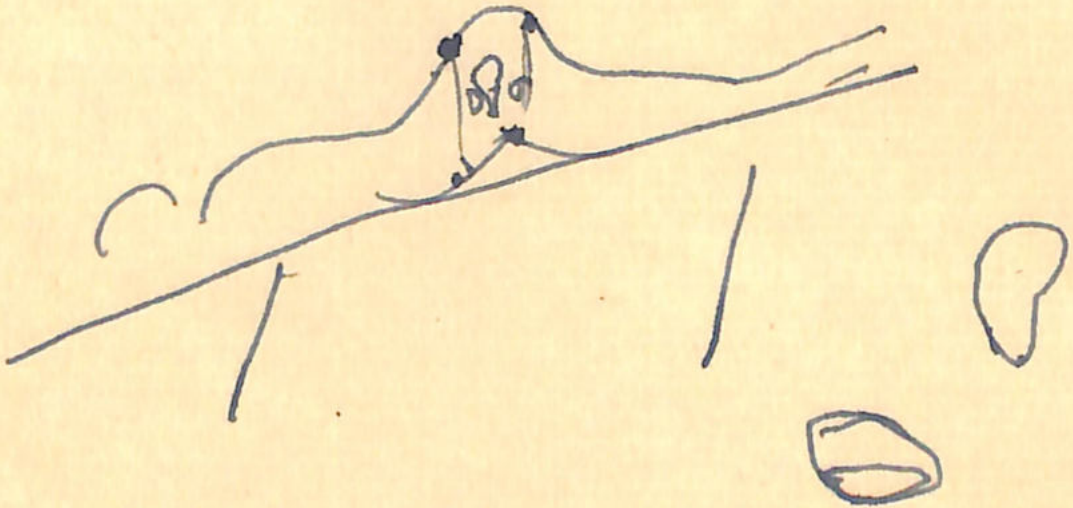
Sterility Studies. 1920 to 57.
Gynecography – { Pneumoroentgenography
Hysterosalpingography
1923–57.

F.A.C.S. PAST PRES. AMER. SOC. STUDY STERILITY.
INTERNAT. FERTILITY ASSN.
PAST. PRES. CHICAGO GYN. SOC.

DR. STEIN –

X





(1) GYN Investigation - Visual Method of Diagnosis

① Gynecography - pneumo
opaque

② Culdoscopy - like Cystoscopy thru' Cul-de-Sac

③ Culpotomy - incision in Cul-de-Sac

④ Laparotomy -

Indications

(1) Infertility –

(2) GYN Cases – not clear by palpation
Differential diagnosis.

(3) Establish normal statics ~~test~~ to prevent- explor. Lab.

Contra-Indications

(1) Infection of Cervix –

(2) Infection of Gen. Tract-

(3) Bleeding.
(4) Too sick - poor risk
(5) Single girl! —
(6) S-L. syndrome
(7) Tumor - must be smaller than thumb pads.

(8)

Investigation (1) Talk both partners - Cooperation (3)

3 sperm - specimen - 0 cervix

Steril. Jar. { (2) (3) }

Rm Temp. 2-3 hrs

Biological side
Physiological side.

1 Sperm count / per cc
2 Motility ——— examine for 24 hrs.
3. Abnormal form

(2) Frequency of sexual intercourse

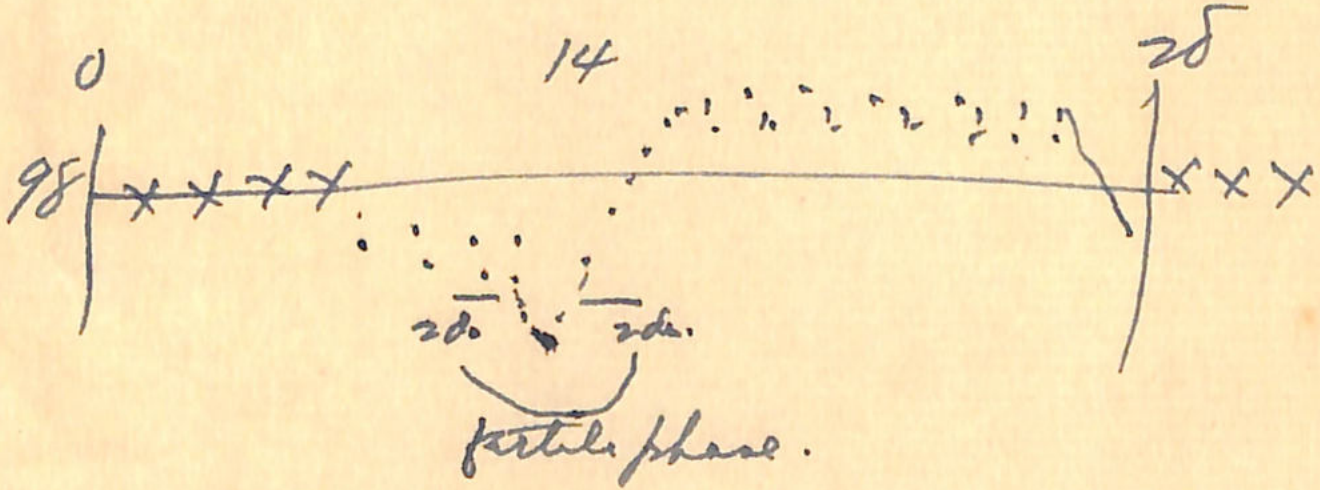
(3) Med Visit - / Male } exam.
— female

Physical & pelvic Exams

(4) Basal Temp. chart. - Rectal (6)
Preferably.

(5) Vaginal smear -
Cervical mucus. - free flow Lubricates
- Stretchibility

(6) Rubin Test. —
Gynecography —
Hysterosalpingography —


0
14
28
98
2δ.
2δ.
partial phase.

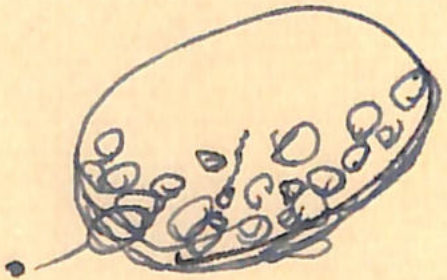
1940 – 22

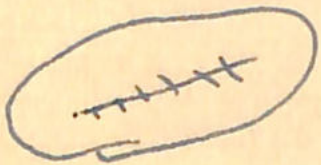
15-30

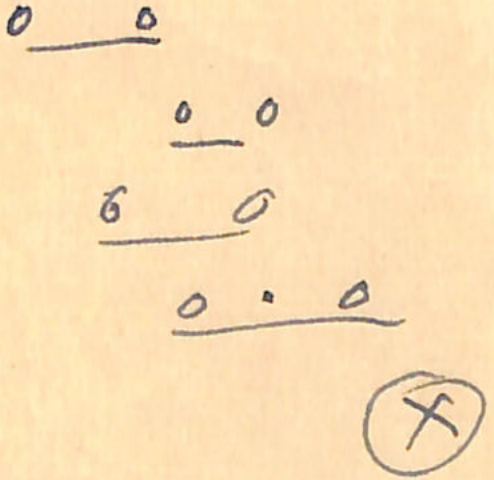
1935

7

9-10-11







96

143

Centripetal

Centrifugal

Watchman Due 1105

ZIRCONS ಗುಲಾಬಿ

AMETHYSTS ಗುಲಾಬಿ ನೇರಳೆ

BLACK STAR ಗುಲಾಬಿ ಬಿಳಿ

- SAPPHRIES

CUT RUBIES ಗುಲಾಬಿ

CUT SAP. ನೀಲ

ಕೆಂಪು

ಹಳದಿ

(ಬಿಳಿ)

Uteri Rupture

2494 - 2499

Total 32660 delivery

Uteri rupture 33 cases

Incidence 1: 989 cases.

Causes

Previous Car — 9 cases. = 27%

Prolapse arms — 6 cases = 18%

Large fetus. — 5 cases = 15%
(3600 - 4200 grams)

Forcep extraction 4 cases = 12%
(Inside & outside Hosp).

Force delivery from outside = 4 cases = 12%
of abdomen (outside Hosp)

G.C = 2 cases 6%

Int. version & forceps extraction (1 case) after coming head = 3%

Posterior Face 1 case = 3%
Presentation

Sites of Rupture ① Old scar - 9 cases (classical)
(from Wona's 44 cases)

② Transverse - 12 cases (from outside)

③ ~~Longitudinal~~
Lateral Rupture - 11 cases.
(unclassified as case, No report.

Mother Mortality 4 case = 12.1%

Fetus death rate 28 case = 84.8%

CHRISTIAN MEDICAL COLLEGE HOSPITAL
POST BOX NO. 3
VELLORE, S. INDIA.

TELEGRAPHIC ADDRESS:
"MISSIONHOS"
VELLORE

TELEPHONE:
COLLEGE : 24
HOSPITAL : 22

Oct. 10, 1957

Dr. Sem
Women's Hospital
Bangkok, Thailand.

Dear Dr. Sem:

I have remembered you with pleasure since the interesting afternoon in your hospital two months ago. You were very kind to me & generous with your time. I promised to let you know the cancer incidence here in Vellore as compared to yours in Bangkok.

Three conditions strike one forcibly here: the extent & prevalence of anemia, the poor nutrition & the large number of cancer cases — especially cervical cancer.

Hook worm infestation as well as inadequate iron & vitamines in the diet contribute to this condition anemia

CHRISTIAN MEDICAL COLLEGE HOSPITAL
POST BOX NO. 3
VELLORE, S. INDIA.

TELEGRAPHIC ADDRESS :
"MISSIONHOS"
VELLORE

TELEPHONE :
COLLEGE : 24
HOSPITAL : 22

I have quoted your hematologist's statement that ample fish soupe in the diet precludes the occurence of anemia among your patients.

Extensive studies are being carried on here regarding available foods & means of educating the people to improve their diets.

Dr. Edward W. Gault, head of the Pathology Department here has collected Cancer Statistics. He has published three papers from which I shall quote later - The references are:

1. Carcinoma of the cervix. Indian Journal Medical Sciences Vol 5 No 7 July '51
2. Ovarian Tumors. Indian Journal Medical Sciences Vol 8 No 8 Aug '53
3. Transactions of the 5th meeting of International Society of Geographical Pathologists - Washington D.C. U.S.A. Sept 1954 pp 732

Dr. Gault found Ca of the breast most frequent Ca of women in U.S.A. (31%) & Denmark (23.7%)

CHRISTIAN MEDICAL COLLEGE HOSPITAL
POST BOX NO. 3
VELLORE, S. INDIA.

TELEGRAPHIC ADDRESS :
"MISSIONHOS"
VELLORE

TELEPHONE :
COLLEGE : 24
HOSPITAL : 22

Cancer of the cervix ranked first in India, Yugo-slavia & Malaya.

Among 1120 cases in Vellore, the distribution was

Breast	Cervix	Fundus	Gastro intestinal	Oral
10.5 %	54.5 %	1.3 %	7 %	14 %

This is an incidence of approximately 41 cancers of the cervix to 1 of the fundus, which seems appalling to me since in San Francisco the relative frequency is 2 to 1 altho in U.S.A in general it is closer to 30 to 4 to 1.

Dr. Gault believes early marriage, multiple pregnancy, poor nutrition & poor hygiene contribute to the frequency of cervical cancer.

Dr. Gault was very much interested in the

CHRISTIAN MEDICAL COLLEGE HOSPITAL
POST BOX NO. 3
VELLORE, S. INDIA.

TELEGRAPHIC ADDRESS :
"MISSIONHOS"
VELLORE

TELEPHONE :
COLLEGE : 24
HOSPITAL : 22

Journal you gave me containing the article regarding ceremonies in your hospital.

I shall be returning to San Francisco in the near future & hope that you will visit there some day.

Many thanks for your courtesy to me & with my best wishes & regards, I am

Sincerely yours

Gertrude F. Jones
M.D. F.A.C.S.

490 Post St
San Francisco
Calif. U.S.A.

เอกสาร

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เอกสารส่วนบุคคล ศาสตราจารย์นายแพทย์เสม พริ้งพวงแก้ว

สบ 1

2/4.3 ความร่วมมือทางการแพทย์กับต่างประเทศ (ชื่อเรื่อง)

กับ บริษัท Ortho Pharmaceutical Limited

พ.ศ. 2500

จำนวน 1 แผ่น

แฟ้มที่ 10

กล่องที่ 2

CABLES : ORTHOBRIT · HIGH WYCOMBE

TELEPHONES : LANE END 396 AND 422

Ortho Pharmaceutical Limited

HIGH WYCOMBE · ENGLAND

AIR MAIL

10th September, 1957.

Dear Dr. Sem,

"TRITHEON Aminitrozole Tablets"

It is our pleasure to bring the above outstanding development of ORTHO research to your notice.

As you know, recurring trichomoniasis has until now been a great medical problem, and we list some of the reasons why TRITHEON Aminitrozole Tablets - the first oral therapy for treating trichomoniasis in the male and the female - may interest you:

(a) TRITHEON Aminitrozole Tablets (2-acetylamino-5-nitrothiazole) are extremely powerful against trichomonads, and taken by mouth will work via the blood stream and eradicate the protozoan completely from the system; as opposed to local treatment which usually only eliminates trichomonads from the vagina.

(b) TRITHEON Aminitrozole Tablets can be used to treat the male, and no doubt your own observations would confirm that as high as 60% of husbands whose wives have trichomoniasis also carry the organism - usually asymptomatically.

(c) TRITHEON Aminitrozole Tablets are small, enteric coated, and free from side-effect.

(d) TRITHEON Aminitrozole Tablets offer a short-term therapy - one tablet, three times per day, for ten days to both husband and wife - plus TRIPLE SULFA CREAM intravaginally for a fortnight to remove secondary infection. The severe long-standing cases may need a further course of treatment.

It is hoped most sincerely that this new development will be of great help to you and should you require supplies or further information, please do not hesitate to contact our local Agents, The New French Dispensary, 693/699, Siphya Road, Bangkok.

Very sincerely yours,
Ortho Pharmaceutical Limited

Donald A. Ham

DAH/WEB. for Export Sales Manager.

CHAIRMAN: H. C. MCKENZIE (U.S.A.) DIRECTORS: REGINALD GEORGE (MANAGING) E. G. FIDLER E. W. HERREN

เอกสาร

ความร่วมมือทางการแพทย์กับต่างประเทศ

- Training in the medical sciences / usom
- Dr. Lalla Iverson by American registry of geographic pathology
- Dr. George Crile by Cleveland clinic
- Dr.Ben Eiseman by Veterans administration hospital
- W.J. Kool by Commonwealth Dental Supply
- Dr.Hartwell Harrison by Peter bent brigham hospital
- Dr. Gortrude J.Jones by Cristian medical college hospital
- Ortho pharamaceutical limited
- Dr.Charles L.Leedham by Cleveland clinic
- Dr. W.J. Kolff by Cleveland clinic
- Us component,Seato medical general laboratory

พ.ศ. 2498 - 2505

(14) สน 1.2/4.4 - 4.11 หน้าที่ 100 หน้า

เอกสารส่วนบุคคล ศาสตราจารย์นายแพทย์เสม พริ้งพวงแก้ว

สบ 1

2/4.2 ความร่วมมือทางการแพทย์ระหว่างประเทศ (ชื่อเรื่อง)

Dr. Charles L. Leedham and Cleveland clinic

พ.ศ. 2502

จำนวน 6 แผ่น

แฟ้มที่ 10

กล่องที่ 2

Women's Hos[illegible]
Bangkok, Thailand.

April 7, 1959

Dr. Charles [illegible]

Frank E. Bunts Education Institute
Cleve[illegible]93 St.
[illegible], OHIO.

Dear Dr. Needham,

Your let[illegible] of January 2[illegible] 1959 had been received with many thanks. The appli[illegible]ion form for traini[illegible] at your institution has been [illegible] up by Dr. Chira Intra[illegible] enclosed with this letter. Your fav[illegible] consideration will [illegible] Would you be kind en[illegible] cost for Dr. Chira as we call him her[illegible] in advising us how much would institution. What are the allowances g[illegible] stay during his training a[illegible] ship ? His traveling expense from Thai[illegible]n to him if he is awarded [illegible] of by our means.

[illegible]nd to the U.S. and back wil[illegible]

Your continued Co - opera[illegible]

With best personal regard[illegible] will be deeply app[illegible]

Yours Sincerely

Sem Pring-puang-sco, M.D.
Dir[illegible] of the Women's an[illegible]
Children

FRANK E. BUNTS EDUCATIONAL INSTITUTE
2020 EAST 93RD STREET
CLEVELAND 6, OHIO

AFFILIATED W
CLEVELAND CLINIC FO

January 20, 1959

Son Pring-puang-geo, M.D.
Director of the Women's
and Children's Hospital
Bangkok, Thailand

Dear Doctor Pring-puang-geo:

At the request of Dr. W. J. Kolff, we are enclosing an application form for training at this institution. Would you please have the doctor whom you wish to send to this country fill out the application and return it to this office, together with a small photograph. We shall be happy to have his application on file should anything further develop.

Sincerely,

Charles L. Leedham

Charles L. Leedham, M.D.
Director of Education

CLL:vf
Enc.

เอกสาร

ความร่วมมือทางการแพทย์กับต่างประเทศ

- Training in the medical sciences / usom
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- Us component,Seato medical general laboratory

พ.ศ. 2498 - 2505

(14) สน 1.2/4.4 - 4.11 หน้าที่ 100 หน้า

เอกสารส่วนบุคคล ศาสตราจารย์นายแพทย์เสม พริ้งพวงแก้ว

สบ 1

.2/4.10 ความคิดเห็นทางการแพทย์จากต่างประเทศ (ชื่อเรื่อง)

Dr.W.J.Kolff จาก Cleveland clinic

พ.ศ. 2502

จำนวน 12 แผ่น

แฟ้มที่ 10

กล่องที่ 2

Women's Hospital,
Bangkok, Thailand.

April 7, 1959

Dr. W.J. Kolff
Department of Artificial Organs
Cleveland Clinic
Cleveland 6, OHIO.

Dear Dr. Kolff,

Your letter of the previous dates together with your wonderful reprints had been received with many thanks.

The working of the heart - lung machine appears to me very complicated and I do agree with you that it will be a good idea to send one doctor to work under you for one or two years or even more.

Thru' your kind Co - operation I also receive an application form from the Director of Education of the Frank E. Bunts Educational Institute. We have chosen Dr. Chira Intralumpun one of my assistant in Surgery to fill up the application form which has already been sent. Dr. Chira as we call him here has been my second assistant in Surgery for few years and has been assisting me in many Cardiac Surgery espacially in Dogs.

Your continued Co - operation is much appreciated.

With best personal regards, I am

Yours Sincerely

Sem Pring-puang-gee, M.D., F.I.C.S.
Director of the Women's and
Children's Hospital.

บันทึกข้อความ

แผนก (หนังสือ)_____เรื่อง_____ฉบับที่_____

ในราชการ แผนก, กอง, กรม_____

วันที่_____/_____/_____

บันทึกข้อความ

แผนก (หนังสือ)_____เรื่อง_____ฉบับที่_____

ในราชการ แผนก, กอง, กรม_____

วันที่ 1 / มกราคม / ๒๕๓๖

Pemco Inc. 5663 BRECKSVILLE ROAD CLEVELAND 31, OHIO

PRECISION MANUFACTURING • SWAGING • VAPOR BLASTING

WILLIAM KOTELES
PRESIDENT

January 21, 1959

LAFAYETTE 4-2991

Sem Pring-puang-geo, M.D.
Director of the Women's and Children's Hospitals
Bangkok, Thailand

Gentlemen:

Dr. W. J. Kolff, of the Cleveland Clinic, has asked us to forward literature and price list on the Pemco Heart Lung Unit.

Enclosed is our brochure, sketches and price sheet.

Delivery on a complete unit including the Kay-Cross Oxygenator and Pemco Heart Pumps is approximately four weeks after receipt of order.

Terms are Cash prior to shipment or letter of credit.

F.O.B. Factory Prices are listed on our price sheet, U.S. Dollars. When placing your order please specify your freight forwarder so that we may contact him regarding shipping instructions.

If the unit is to be shipped via ocean freight, please add $100 for a complete unit for export packing. If shipped by air this is not necessary as the airlines will accept regular cardboard cartons instead of the solid wooden box required if the unit is going by vessel.

If electrical modifications are required (our standard unit has 60 cycles, 120 volt, a.c. single phase) please specify on order. Indicate your import license number if one is required by your country.

If further information is needed, please write.

Sincerely yours,

PEMCO INC.

Lillian T. Kautzky

Mrs. Lillian T. Kautzky, Export Sales Manager
ltk

P.S. Electrical Modifications - if required please add $100.00 for pump and drive unit.

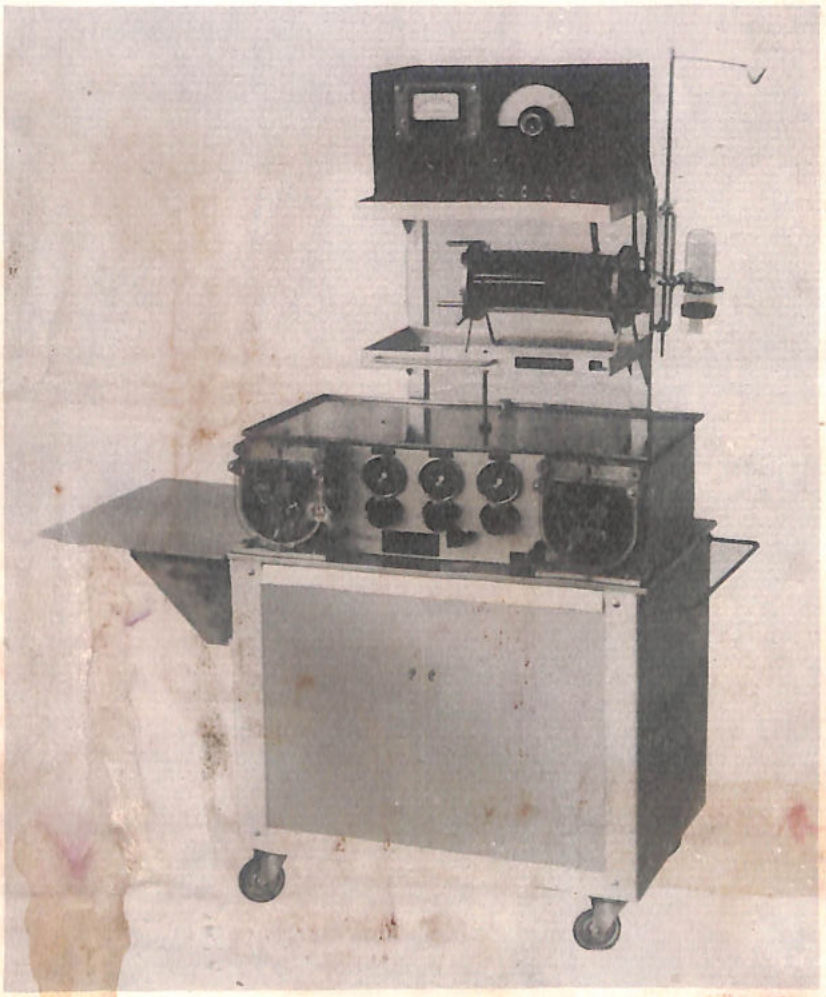
THE PEMCO HEART-LUNG UNIT

featuring the KAY-CROSS ROTATING DISC OXYGENATOR

MANUFACTURED BY

PEMCO INC.

5663 BRECKSVILLE ROAD
CLEVELAND 31, OHIO



THE PEMCO STANDARD UNIT — The Pemco Heart Pump Unit has mounted on it three (3) seven inch working diameter, 200° pumps: an Arterial pump, Venous pump and a Sump pump. It is completely explosion proof. The Venous return pump can be used directly from the caval system or from a gravity reservoir. The pumps are mounted in a 32 inch base with a stand attached making available a shelf for the disc oxygenator and a shelf that places the disc oxygenator control box, above the 5 foot level. The stand supports an I.V. rack and bubble trap mount.

Pemco Heart Pumps are of the rotary type with guide rollers, tube clamps and necessary bushings, and two precision adjustable rollers of aluminum to achieve the individual amount of occlusion or backflow in surgical gum latex tubing or tygon tubing. They also feature complete mechanical drive utilizing one constant speed motor and individual variable mechanical pump speed controls. Visual tachometer and all pump speed controls are mounted on convenient central front panel. Antifriction and permanent lubricated bearings are used throughout to reduce wear, electrical-demand and time wasted in oiling and servicing equipment. Materials mostly used are anodized aluminum, to save on overall weight and stainless steel, where strength and corrosion resistance are necessary. The three pumps, drive, motor and controls are completely mounted on one cabinet with four swivel, rubber-tired casters to achieve excellent portability and convenient positioning.

GENERAL DESCRIPTION — Pump — Aluminum casting, seven inch diameter, machined in one setup to assure constant concentricity between rollers and pump body, giving constant pressure on tubing during the complete length of pumping cycle. Pumps are polished and then clear anodized.

A sealed, pre-lubricated, double row ball bearing is used to give added rigidity to the stainless steel pump shaft. The bearing is held into pump body with a steel snap ring. Nylon guide rollers are used to keep the tubing in correct path in the pump for best efficiency. Aluminum rollers are mounted on antifriction needle bearings in a cast aluminum rotor which is keyed to the stainless steel shaft.

The precision roller adjustment is a stainless steel shaft, machined with an eccentric, adjusted with a worm gear, and locked in place by two thumb screws.

Motor is a 1750 R.P.M. Leland explosion-proof motor, U.L. approved for use in ether atmosphere, mounted under the base plate with V-belt drive to above the base plate onto two counter shafts; semi-flexible couplings to the three "Zero-Max" speed changer, then through timing belts to the Boston Gear speed reducer which is directly coupled to the pumps.

All drives, couplings, pulleys, or gears are either pinned or keyed, removing any possibility of a loosened set screw.

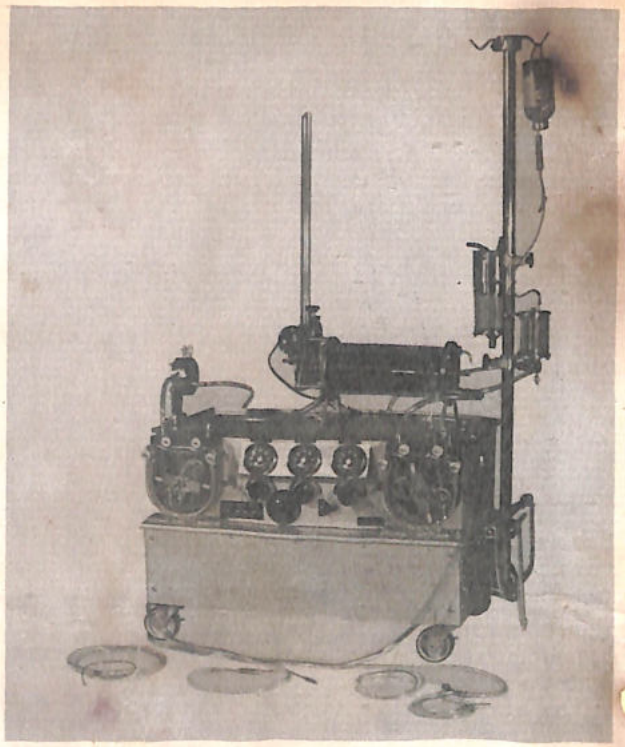
Tachometers are mechanically driven directly from the pump, registering in R.P.M. and giving a true visual reading of any change or deviation of the pump speed.

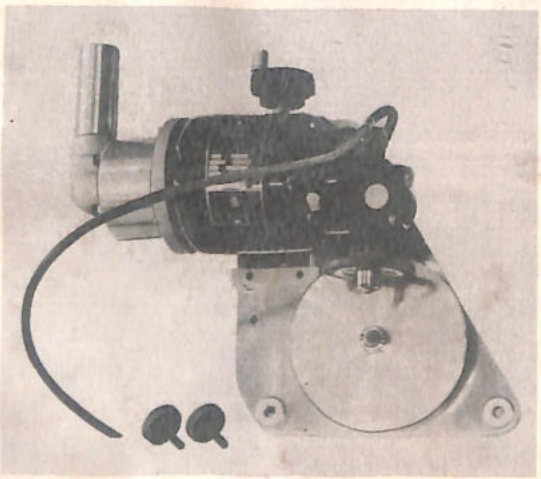
Hand cranks are installed to give maximum ease in their operation. They are used when installing the tubing in the pump and also in the event of a power failure, the hand crank ratio is two and one-half turns to one turn of the pump. When the hand crank is used and the motor is off, the tachometers will still register.

Tube clamps are mounted on the top of the pump. Bushings can be furnished to fit any size of tubing — ½ to ¾ inch inside diameter, ⅛ inch wall surgical gum latex tubing, or ¼ to ½ inch inside diameter, 1/16 and/or 3/32 inch wall Tygon tubing (single), or ¼ to ⅜ inch inside diameter, 1/16 and/or 3/32 inch wall Tygon tubing (double), used in the coronary sinus pump.

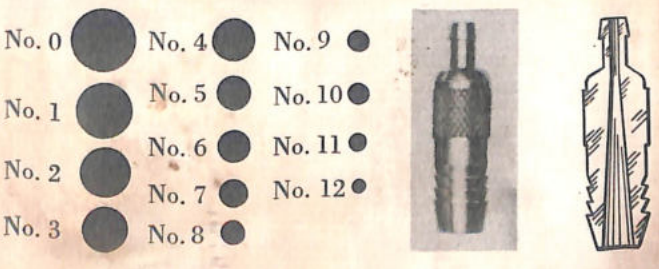
GRAVITY MODEL — The Gravity model is a 24 inch high replica of the Pemco Standard Unit mounted in a 15 inch base. It can be used as a full gravity return to the oxygenator from the vena cavae or will perform all the functions of the high model. In addition, the unit houses an explosion proof Powerstat mount complete with warmth control and disc drive motor switches. A snorkel tube for the disc drive motor, rises above the 5 foot level. A mast is provided for I.V. bottles, Bubble trap, etc.

Swivel wheels, for ease in placement of the unit, with wheel locks to prevent shifting, are of large diameter. Provided also is a fold-away handle that allows the Technician positive control of the unit as it is moved to and from the operating room and the laboratory.



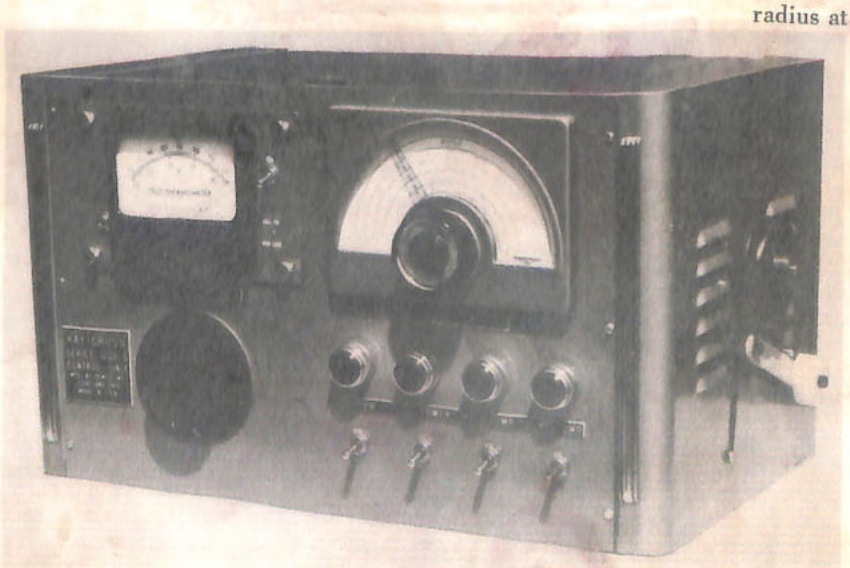


DIRECT DRIVE UNIT — Use of the 24 inch high unit calls for direct drive of the oxygenator. This friction type variable speed unit mounts on the three dismantling legs of the Arterial end plate. The induction motor is forced air cooled and the air is supplied through a plastic snorkel tube that rises to above the 5 foot level. The Motor is a high quality Bodine Motor with a speed reducing gear head. Driven wheel is spring loaded for optimum pressure against the driving wheel. A two section, pin driven coupling corrects any misalignment that might occur and allows easy removal and assembly of drive to oxygenator end plate.



ARTERIAL CONNECTORS — New and improved stainless steel arterial connectors have a longer catheter end and a knurled section on the body to provide increased ease in handling and securing. 13 arterial connectors in sizes 0 thru 12 purchased in individual sizes or as a set are available.

Connectors and line reducers of stainless steel allow us to highly polish inner functional surfaces. The cut away view shows the slow taper designed into units wherever reduction in I.D. appears, reducing turbulence to minimum. Knurled bodies of connectors and line reducers are optional. O.D. of fixtures etc., are reduced to I.D. of tubing with a minute radius at the ends.



CONTROL BOX — Designed for use with Pemco Standard Unit. Sigma cross-circulation pumps and other units, where disc oxygenators are used, the Pemco control box contains the disc drive motor and mechanical transmission with output shaft speed of from 0 to 160 R.P.M. (with enough power output to drive three 21 inch oxygenators, without speed error) and the Powerstat controlled warmth circuit as well as the Tele-thermometer for blood warmth readings. The electrical system is three-wire, 110-120 V.A.C. 60 cycle fed. The third wire is used for grounding. Switches and pilot lights are provided for disc motor power, heater, sump pump and main pump. Thus the pumps can be connected directly to the control box for electrical power and switching. Electrical input and output connector plugs are supplied with the unit.

OXYGENATOR — The Kay-Cross rotating disc reservoir-oxygenator, made by Pemco, Inc., was developed by Drs. F. S. Cross, B. Kay, R. M. Berne, and Mr. R. D. Jones, in the Claude Foster Laboratory for Surgical Research in the Department of Surgery, Saint Luke's Hospital, Cleveland, Ohio. After extensive laboratory use the pump oxygenator has been utilized in clinical cases, both adults and children, at Saint Vincent Charity Hospital and Saint Luke's Hospital, Cleveland, Ohio, as well as in 93 other major cardiac centers throughout the world with no deaths attributable to the apparatus.

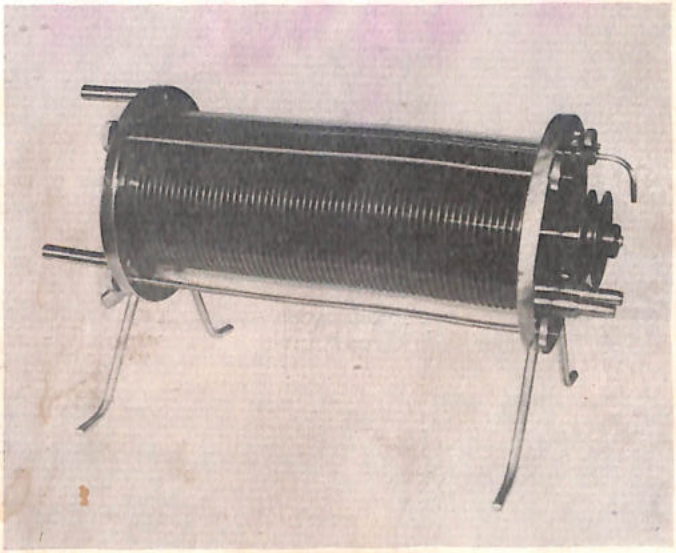
The basic principle of the oxygenator is the exposure of a film of blood to oxygen atmosphere on a series of rotating discs mounted within a horizontal cylinder of Pyrex glass, with no foaming or bubbling of the blood. The stainless steel discs are supported on a horizontal shaft and are spaced by parallel ground stainless steel washers. The shaft and discs are rotated with a pulley and belt by a variable speed motor. Blood is maintained at a sufficient level in the oxygenator to act as a reservoir, permitting variations in patient blood volume and extrinsic blood loss without the necessity of reduction of pump output. Oxygen-CO_2 mixtures are delivered the full length of the oxygenator by a stainless steel tube, perforated to supply gases to each pair of discs.

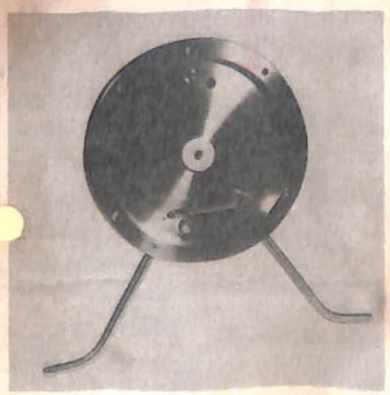
The oxygenators are supplied in four lengths; 9″, 13″, 17″, and 21″. The following table compares the various size oxygenators:

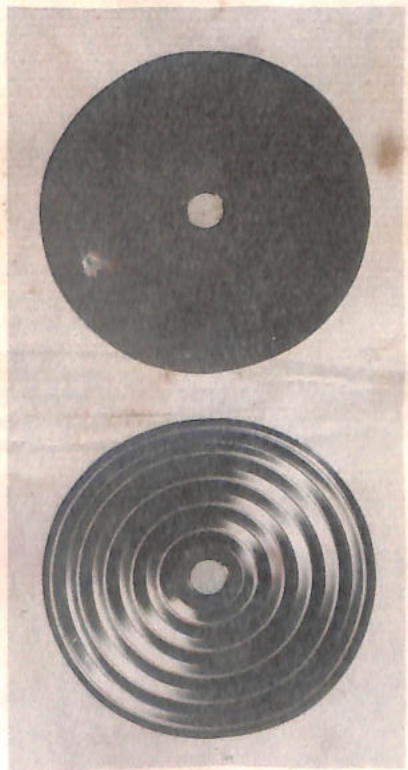
Size	Priming Volume	Rec. Max. Flow	Patient Wt. Limit
9″	900 cc.	1000 cc./min.	—
13″	1400 cc.	1600 cc./min.	to 25 Kg.
17″	2000 cc.	2500 cc./min.	to 45 Kg.
21″	2500 cc.	4500 cc./min.	to 80 Kg.

The oxygenator has given satisfactory oxygenation in all cases. After clinical runs for as long as 2 hours, laboratory findings have shown changes well within tolerable limits. The steel and glass surfaces may be prepared with silicone preparations which make them non-wetting, and defibrination of the blood does not occur.

Extreme care has been exercised in the choice of materials so that the entire oxygenator may be steam sterilized after assembly. 303 stainless steel is used throughout and dimensional tolerances are carefully controlled to avoid impairment of function.





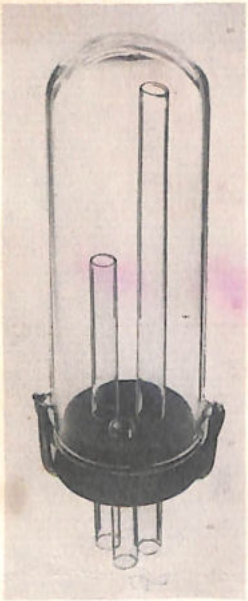


END PLATES — Disc Oxygenator end plates of stainless steel support the unit 6½″ from center of disc shaft to table. They also support the ends of the Oxygen-CO_2 jet tube and the tie rods. The Arterial end plate has provisions for blood sampling and Tele-thermometer insertion. The Arterial outlet comes standard with choice of ⅜″ or ½″ barbed connector mounted at 30°. It is also equipped with three additional legs so that the oxygenator can be placed on end for ease in dismantling or assembly of the cylinder and discs. Two openings are provided to allow venting of circulating oxygen.

The Venous end plate is equipped with choice of a ⅜″ or ½″ inlet fixture to accept tygon tubing from the bubble trap or the reservoir, and also accepts the tygon venous line. The oxygen tube is fed at this end from the gas supply. When used in conjunction with a "V" belt drive the pulley to accept the belt is placed on this end. With direct drive, the drive assembly is supported on the three legs of the Arterial end plate.

Both end plates are available, on special order, with removable spouts, diameter and angle variations, at a slightly higher cost.

DISCS — Straight or convoluted discs can be supplied for the oxygenator unit. For additional oxygenation of each size Oxygenator a choice of convoluted discs mounted with standard .185 spacer washers or straight discs mounted with .140 spacers will provide up to 25% more oxygenation. The convoluted discs present more surface and the straight discs with smaller spacers allow additional discs to be mounted in the unit.

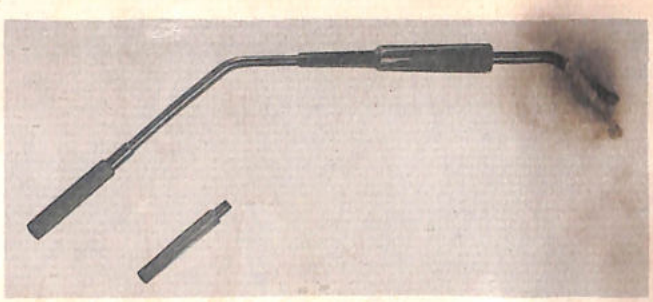


BUBBLE TRAP — The bubble trap is manufactured of pyrex glass, 17.5 cm high and 5.79 cm in diameter. Three 7/16" O.D. pyrex tubes are inserted through a black surgical gum rubber stopper. The addition of two stainless steel springs assure a more than sufficient seal between the stopper and the pyrex glass tube dome.

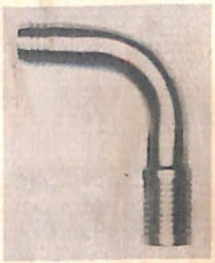
Blood enters the bubble trap from the coronary sinus return through the medium height tube and leaves the bubble trap from the lowest of the three tubes to enter the venous side of the disc oxygenator. The third and highest tube in the bubble trap is the air relief.

Blood level in the bubble trap is maintained by adjusting its height in relation to the blood level in the disc oxygenator. Simple, straightforward and efficient, the bubble trap is easy to assemble and disassemble by your lab technician.

LINE REDUCERS — Stainless steel line reducers adapt to 1/4", 5/16", 3/8", 1/2" and 5/8" Tygon tubing. Knurled body and nuts facilitate assembly and disassembly. Two models available, one has a threaded nut, the other a fast acting slip-fit nut to compress Tygon tubing on body barbs, providing a positive connection between two different I.D. size tubings.



JONES-CROSS SUCTION TIP — The Jones-Cross suction tip is a chrome finished tool with two interchangeable tips. Finely balanced with carefully designed bends for maximum handling comfort.



90° PUMP CONNECTORS, for use on the negative side of the pumps, prevent kinking of the tubing. Outlet side to accept 1/2 or 3/8 inch Tygon tubing, inlet end accepts 1/2 - 5/8 or 3/4 inch Latex. They are barbed at both ends with a highly polished interior. A very desirable accessory for the pump units. Straight connectors, for pressure side of pump, complete the set.

"Y" CONNECTORS — Available with a combination of sizes in any of the three legs. Manufactured in stainless steel with a choice of straight barbed body alone or with threaded lock nut. Also available with slip-fit nut.

PEMCO INC. stocks Tygon, Teflon, Surgical latex tubing, Silicone 803, Silicone grease and Tele-thermometers.

DESCRIPTION OF APPARATUS — The essential components of the present pump oxygenator are a pump and a rotating disc type reservoir-oxygenator. The basic mechanism of the oxygenator is a series of plastic coated stainless steel discs 0.024 inches (0.61 mm) thick, and 4.67 inches (11.87cm) in diameter, mounted 0.185 inch (4.70 mm) apart by means of stainless steel spacers on a central shaft. The disc assembly is supported within a pyrex cylinder 9", 13", 17" or 21" long, and 5 1/8 inches (13.0 cm) in diameter, by gasketed end plates of stainless steel. Blood is introduced at one end of the cylinder and is removed from the opposite end. Rotation of the discs effectively prevents channeling of the blood along the bottom of the cylinder. The 13" 57 disc oxygenator is primed with 1400 cc of whole blood to immerse the discs to 1 5/8 inches (4.1 cm), a level calculated to provide maximum exposure area of blood to oxygen. When the discs rotate, the blood films on the peripheral 1 5/8 inches of each disc for exposure to oxygen. With the oxygenator primed with 1400 cc the static exposed area of the 57 discs is 7.9 square feet, or 0.73 square meter. At a disc rate of 120 revolutions per minute, the rate generally employed, 950 square feet, or 87.5 square meters, of filmed blood is exposed to oxygen per minute. To turn the discs, a pulley mounted on one end of the shaft is driven through a V-belt by a fractional horsepower motor driving a speed reducer transmission. Oxygen is supplied through a perforated stainless steel tube mounted within the cylinder above the discs. The oxygenator is warmed by a wrapping of silicone rubber-covered resistance wire, the temperature of which is controlled by a Powerstat.

All pumps rotate clockwise at speeds ranging from 0 to 80 R.P.M. Pumps should be operated at speeds above 25 R.P.M. If lower volume output, than that delivered at 25 R.P.M., is desired, the next size smaller tubing should be used.

Chart shows approximate volume check made at the factory 24 hours after tubing was in autoclave. Pump having full occlusion. Volume varies with the difference in tube material and temperature of autoclave and must be checked before each operation.

Wall Thickness	I.D. of Tube	Pump Output Volume in cc./min. R. P. M. 30	40	50	60	70	80
1/16"	5/16" Tygon	480	760	890	980	1350	.....
1/16"	3/8" Tygon	800	1090	1250	1390	1580	.....
1/16"	1/2" Tygon	900	1200	1420	1650	1820	2000
1/8"	1/2" Latex	1200	1700	2200	2700	3200	3700
1/8"	5/8" Latex	2360	3200	3880	4500	4980	5700
1/8"	3/4" Latex	3000	4000	5000	6000	7000	8000

MANUFACTURED BY **PEMCO INC.** 5663 BRECKSVILLE RD.
CLEVELAND 31, OHIO LAfayette 4-2991

Pemco Inc. 5663 BRECKSVILLE ROAD CLEVELAND 31, OHIO

PRECISION MANUFACTURING · SWAGING · VAPOR BLASTING

WILLIAM KOTELES
PRESIDENT

PRICE LIST
January 1, 1959

LAFAYETTE 4-2991

KAY-CROSS OXYGENATOR AND COMPONENT PARTS

	9"	13"	17"	21"
Kay-Cross Oxygenator - Series E				
.185 spacers - straight discs	$ 630.00	$ 700.00	$ 770.00	$ 850.00
.140 " - " "	650.00	730.00	810.00	900.00
Combination of .185 & .140 spacers	750.00	800.00	875.00	950.00
Convoluted discs	900.00	1000.00	1100.00	1200.00
Control Box - Series 1200-5	575.00	575.00	575.00	575.00
Stand	100.00	100.00	100.00	100.00
Straight Glass Cylinder (Spare)	45.00	50.00	55.00	60.00

CONVERSION ASSEMBLIES:

Convert from a larger to a smaller unit: (Glass Tube, Shaft, Oxygen Tube, Tie Rods and Heater Wire)	166.25	185.00	208.25	------
Convert from 9" to a larger unit:	------	265.75	369.75	476.75
" " 13" " " " "	------	------	289.00	396.00
" " 17" " " " "	------	------	------	315.25

(Glass Tube, Shaft, Oxygen Tube, Tie Rods, Heater Wire, Spacers and Discs)

ACCESSORIES AND PARTS

	Each
Pemco Bubble Trap	$ 25.00
I. V. Rack	10.00
Gross Bubble Trap (5/8" Inlet & Outlet #1410)	275.00
Gross Arterial Line Filter (3/8" Inlet & Outlet #1411)	250.00
Gross Reservoir (1/2" Inlet & 5/8" Outlet - 1/2 Liter #1412)	450.00
Gross Filter, Reservoir, Bubble Trap, Removable Pole, Brackets, Handles, Clamps, I. V. Rack mounted in pump and cart.	1200.00
Discs, straight	2.50
" , convoluted	4.50
" , siliconizing charge	.25
Spacers	1.00
Silicone Rubber Gaskets	8.75
Heater Wire #58161-R (per foot)	.75
8 Ounce Jar High Vacuum Stopcock Grease	10.00
1 Pound Can Silicone Resin.	6.00
Heater Wire Clamps (set).	15.00

SURGICAL INSTRUMENTS

Jones-Cross Suction Tip	34.00
Kay Coronary Artery Perfusion Cannula (5/16", 1/4", or 3/8").	95.00
Flow Scale with Stop Watch.	36.00

PEMCO PUMPS

Pemco Pump - 4 Pump Unit.	4000.00
" " - 3 Pump Unit.	3000.00
" " - 2 Pump Unit.	2000.00
" " - 1 Pump Unit.	1000.00
Cart - High (4 Pump - $400.00). (3, 2, & 1—)	300.00
Cart - Low (4 Pump - $200.00). (3, 2, & 1—)	150.00
FRICTION DRIVE (110 - 120 volts only - DD-1700).	250.00
EXPLOSION PROOF POWERSTAT MOUNTED IN PUMP AND CART.	450.00
TELE-THERMOMETER MOUNTED IN TABLE CART WITH PROBE	150.00
MAIN MOTOR DISC DRIVE (export orders specify voltage & frequency)	530.00

Pemco Inc. 5663 BRECKSVILLE ROAD CLEVELAND 31, OHIO

PRECISION MANUFACTURING • SWAGING • VAPOR BLASTING

WILLIAM KOTELES
PRESIDENT

PRICE LIST

LAFAYETTE 4-2991

January 1, 1959

PUMP HEAD CONNECTOR: 3/4, 5/8, 1/2, 7/16 or 3/8"	Each
Straight	$13.00
Threaded (one end)	18.00
" (both ends)	23.00
Bent - 90°	25.00
Threaded & Bent	33.00

"Y" CONNECTOR: 5/8, 1/2, 7/16, 3/8, 5/16, 1/4 or 3/16"	Each
Straight	$35.00
Threaded	50.00

Add $10.00 for I. V. Hole
Add $15.00 for Stopcock

ARTERIAL LINE CONNECTOR: Sizes:	Each Straight	One End Threaded	Both Ends Threaded
3/16, 1/4 or 5/16"	$ 6.00	$11.00	$16.00
3/8"	6.50	11.50	16.50
7/16"	7.00	12.00	17.00
1/2"	8.00	13.00	18.00
5/8"	9.00	14.00	19.00
3/4"	10.00	15.00	20.00

Add $ 5.00 for Reducer
Add $10.00 for I. V. Hole
Add $15.00 for Stopcock

ARTERIAL AWG - sizes 0 thru 12 @ $13.00 each $169.00
TEFLON CATHETER TUBING for above - 13 foot lot 15.00

TUBING:

TYGON, Formulation B-44-3

I. D.	O. D.	Wall Thickness	Price per foot 1-49Ft.	50-99Ft.	100 Ft.
3/16	5/16	1/16	.24	.22	.19
1/4	3/8	1/16	.29	.26	.23
5/16	7/16	1/16	.35	.32	.28
3/8	1/2	1/16	.41	.37	.33
3/8	9/16	3/32	.52	.48	.42
1/2	5/8	1/16	.49	.45	.39
1/2	11/16	3/32	.66	.60	.53
5/8	13/16	3/32	.81	.74	.65
11/16	7/8	3/32	.88	.81	.71
3/4	1	1/8	1.16	1.06	.93
SURGICAL GUM LATEX TUBING:					
3/4		1/8	.60	.55	.50
5/8		1/8	.45	.40	.35
1/2		1/8	.40	.35	.30
3/8		1/8	.35	.30	.25

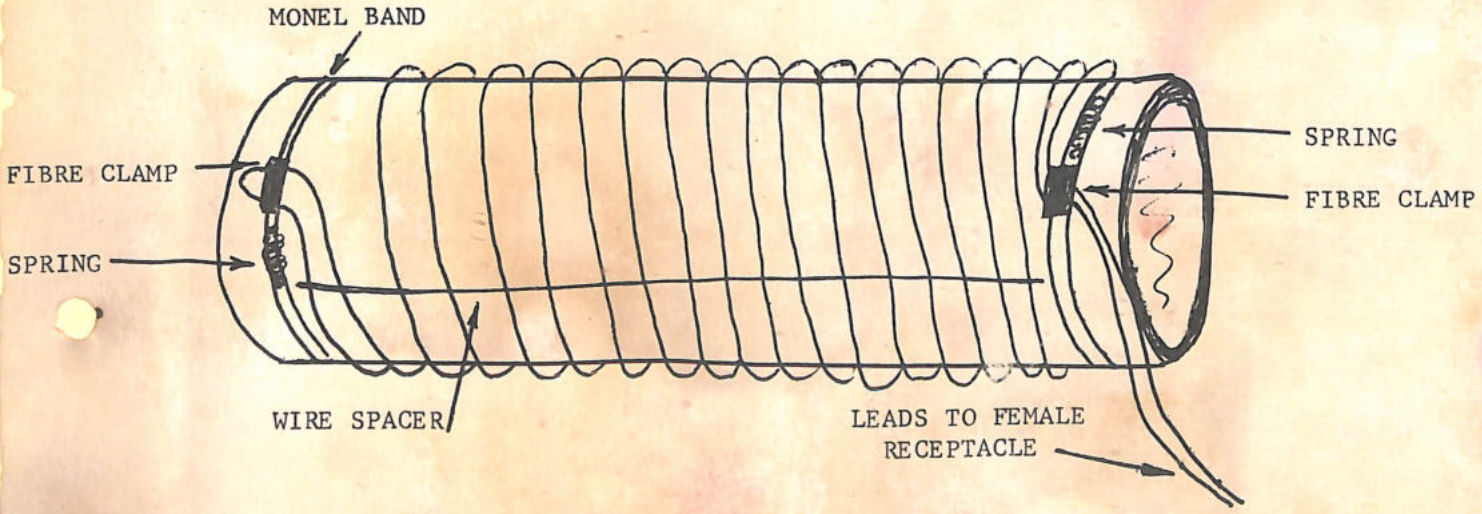
F.O.B Factory Prices, Cleveland, Ohio. Prices subject to change without notice. Export orders require an extra charge for export packing and modifications to electrical requirements if other than our standard 60 Cycle, 120 Volt, A.C. Single Phase.

Please address inquiries to: MR. WILLIAM KOTELES
Pemco Inc., 5663 Brecksville Road, Cleveland 31, Ohio, U.S.A.

Pemco Inc. 5663 BRECKSVILLE ROAD CLEVELAND 9, OHIO

PRECISION MANUFACTURING • SWAGING • VAPOR BLASTING

HEATER WIRE CLAMP SET



INSTRUCTIONS FOR ASSEMBLY

STEP 1 Stretch one clamp over each end of Pyrex glass cylinder making sure the spring attached to the monel band is on the top side of the fibre wire clamp on the right side of the cylinder and the spring is on the bottom side of the fibre wire clamp on the left side of the cylinder - as shown.

STEP 2 Extend heater wire from plug connector so that the center point of the wire can be found and bent

STEP 3 Open left fibre clamp by loosening the knurled nut enough so that the heater wire can be fed to the two slots provided to accept the wire at this bend. Tighten the knurled nut

STEP 4 Wind the parallel wires around the pyrex cylinder spacing the wire so that an even distance appears between each turn - leaving enough wire between the right clamp and the plug to reach the female receptacle, clamp the wire in the slots provided on the right clamp

STEP 5 Insert a wire spacer horizontally accross the cylinder, front and back, at the blood level ordinarily used in the cylinder to avoid a hot spot which may result in fibrin deposition on the interior of the cylinder wall

STEP 6 Gradually space and tighten the heater wire against the pyrex cylinder until a nice even spacing and a tight spiral wrap is accomplished

STEP 7 Recheck knurled nuts for tightness

The cylinder with its heater wire and clamps can now be autoclaved as a unit along with the discs and end plates

Order a set of clamps for each of your Kay-Cross Rotating Disc Oxygenator sizes.

PEMCO INC. - Cleveland 31, Ohio, U.S.A.

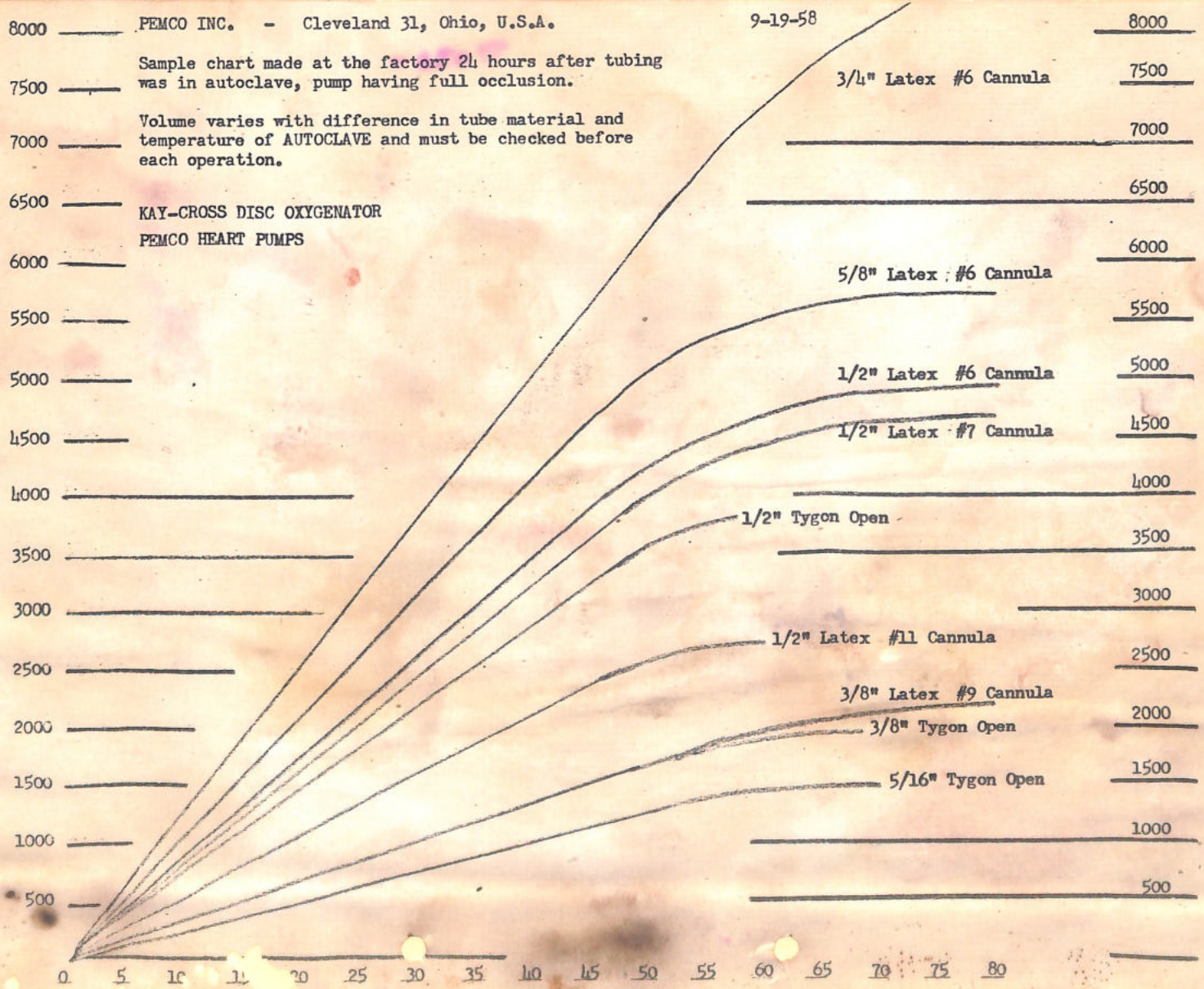
9-19-58

Sample chart made at the factory 24 hours after tubing was in autoclave, pump having full occlusion.

Volume varies with difference in tube material and temperature of AUTOCLAVE and must be checked before each operation.

KAY-CROSS DISC OXYGENATOR

PEMCO HEART PUMPS



AUTOCLAVE TRAY -250°

Stacking type
with
Steam ports

A unit AUTOCLAVE TRAY, specially designed to facilitate the sterilization of an oxygenator and relative equipment in one package.

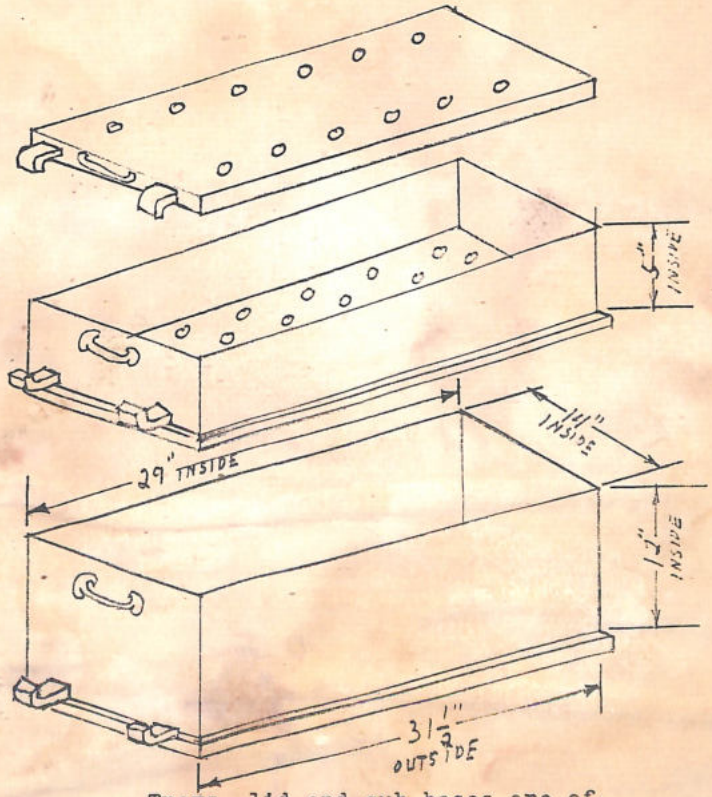
Large tray for oxygenator, bubble trap, filters, reservoir and other large parts.

Small tray for tubing or smaller parts.

A perforated sub-base in each tray is used to spread the steam for a complete saturation.

Trays can be stacked, with either tray on the bottom or used separately.

Steam ports in the lid and in the bottom of each tray permits the steam to enter. A strip valve with a pull-open and push-closed action either allows steam to enter or seals the tray for transporting from autoclave to the operating room.

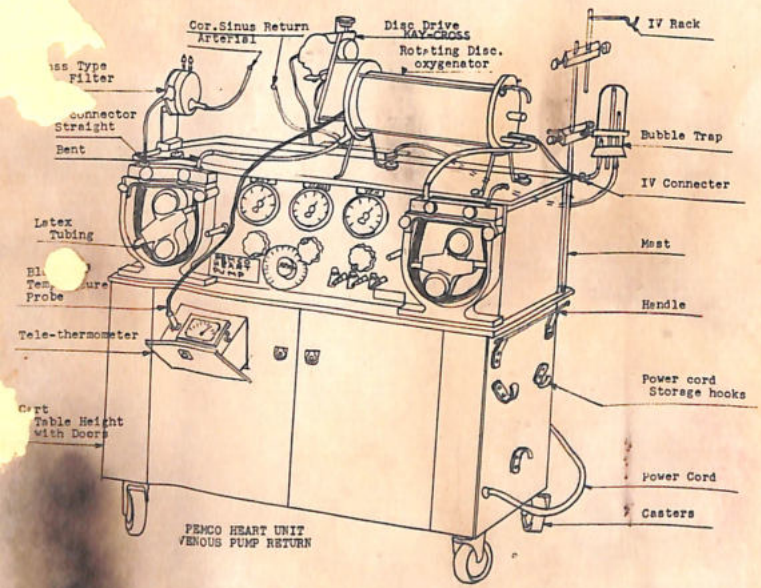


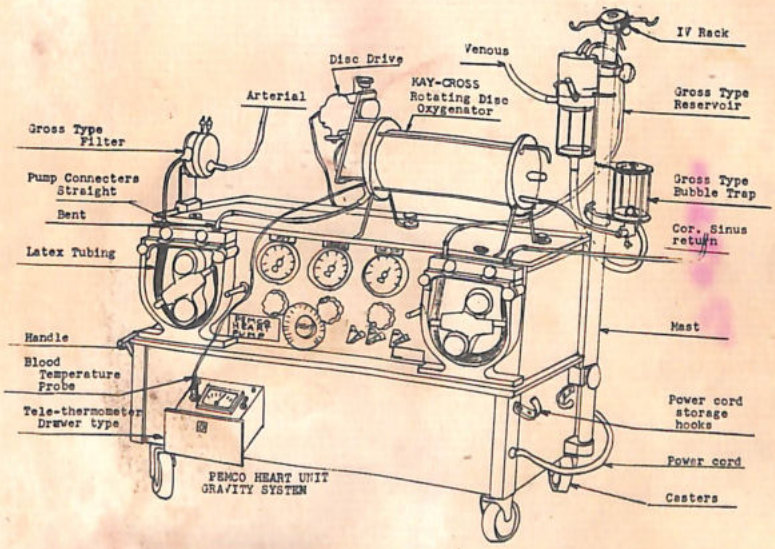
Trays, lid and sub bases are of welded stainless steel construction. Above unit designed for a 24" diameter autoclave when stacked as shown.

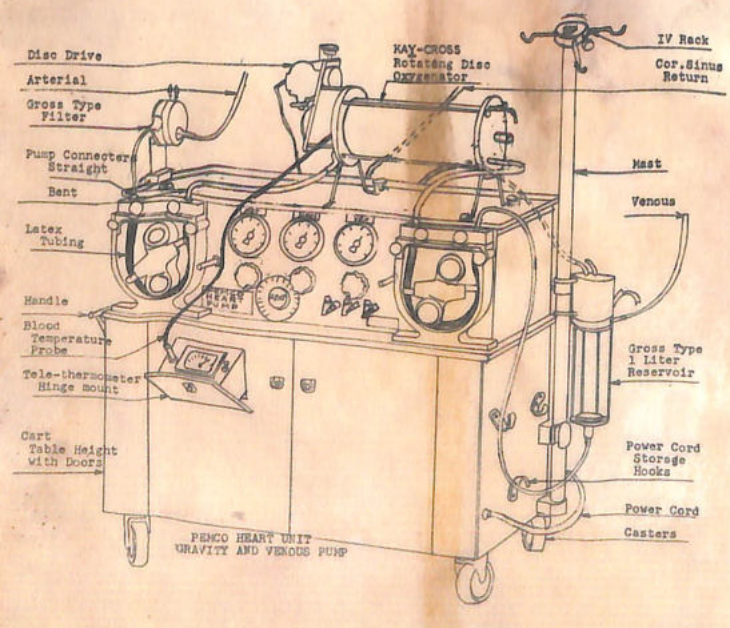
Pemco Inc., 6663 brecksville Rd., Cleveland, Ohio

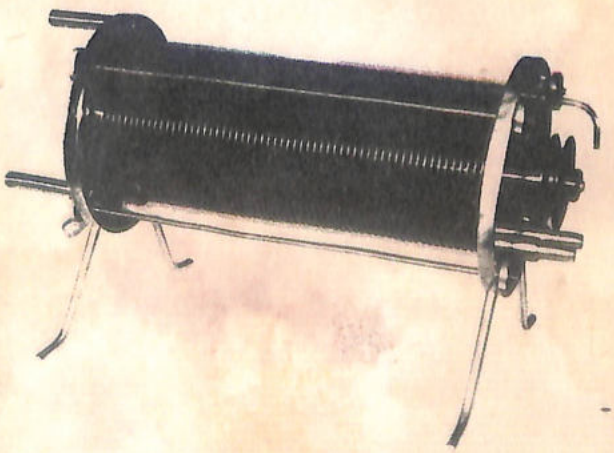
MANUFACTURED BY **PEMCO INC.** 5663 BRECKSVILLE RD.
CLEVELAND 31, OHIO LAfayette 4-2991

Recommended methods of connecting
Pemco High and Low pump units.









Pemco Inc. 5663 BRECKSVILLE ROAD CLEVELAND 31, OHIO

MANUFACTURER OF THE KAY-CROSS ROTATING DISC OXYGENATOR

WILLIAM KOTELES
PRESIDENT

LAFAYETTE 4-2991

STANDARD MEDICAL CONVERSION TABLES

Conversion chart of most commonly used diameters in the medical field.
Adaptors - Catheters - Tubing - etc.

ters	Inches	A.W.G.	English	French	Millimeters	Inches	A.W.G.	English	French
.33	.0131			1	5.0	.1968		8	15
.66	.0262			2	5.21	.2043	4		
1.0	.0394			3	5.33	.2099			16
1.33	.0525			4	5.50	.2165		9	
1.50	.0591		1		5.66	.2230			17
1.66	.0656			5	5.84	.2294	3		
2.0	.0787		2	6	6.0	.2362		10	18
2.07	.0808	12			6.33	.2493			19
2.31	.0907	11			6.50	.2559		11	
.33	.0918			7	6.54	.2576	2		
.50	.0984		3		6.66	.2624			20
.59	.1018	10			7.0	.2756		12	21
.66	.1047			8	7.33	.2887			22
.92	.1144	9			7.36	.2893	1		
3.0	.1181		4	9	7.50	.2953		13	
3.26	.1284	8			7.66	.3018			23
3.33	.1312			10	8.0	.3150		14	24
.50	.1378		5		8.23	.3248	0		
3.65	.1442	7			8.33	.3281			25
3.66	.1443			11	8.50	.3347		15	
4.0	.1575		6	12	8.66	.3412			26
4.13	.1620	6			9.0	.3543		16	27
4.33	.1706			13	9.33	.3674			28
4.50	.1772		7		9.50	.3740		17	
4.61	.1819	5			9.66	.3805			29
4.66	.1837			14	10.0	.3937		18	30

The above table correlated by David A. Huebscher
4-22-58

TO:

Dr. Sem

With my best personal regards,

Jack Brown

CLEVELAND CLINIC
2020 EAST 93RD STREET
CLEVELAND 6, OHIO

DEPARTMENT OF ARTIFICIAL ORGANS
WILLEM J. KOLFF, M.D.

January 14, 1959

Sem Pring-puang-geo, M.D.
Director of the Women's
and Children's Hospitals
Bangkok, Thailand

Dear Doctor Pring-puang-geo:

Thank you for your letter of December 15, 1958. I have asked Pemco, Inc. to send you information and price quotations on the rotating disc oxygenator and pumps. I believe that this would be the best equipment for you to use.

I also believe that it would be a good idea to send one doctor here for at least one year's time. If his English is poor, he should come for a longer period because he will not begin to understand until the first half of the year is over.

We are making plans and hope to obtain a Fellowship for Doctor Sitprija at the recommendation of Doctor C. Vasrabukka in Thailand. We do not know if we will be able to obtain any money for him and feel that it would be unwise to make attempts in getting money at the same time for two people. Therefore, I suggest that you investigate the possibilities for obtaining funds and then contact us again.

Any appointment to the Cleveland Clinic Foundation goes through The Frank E. Bunts Educational Institute which is the educational arm of the Clinic; Director, C. L. Leedham, M.D. We have requested that an application blank be sent to you by Bunts so that we may have it on file if anything should develop.

Sincerely yours,

W. J. Kolff, M.D., Head
Dept. of Artificial Organs

WJK/sm

cc: C.L.Leedham, M.D.

เอกสาร

ความร่วมมือทางการแพทย์กับต่างประเทศ

- Training in the medical sciences / usom
- Dr. Lalla Iverson by American registry of geographic pathology
- Dr. George Crile by Cleveland clinic
- Dr.Ben Eiseman by Veterans administration hospital
- W.J. Kool by Commonwealth Dental Supply
- Dr.Hartwell Harrison by Peter bent brigham hospital
- Dr. Gortrude J.Jones by Cristian medical college hospital
- Ortho pharamaceutical limited
- Dr.Charles L.Leedham by Cleveland clinic
- Dr. W.J. Kolff by Cleveland clinic
- Us component,Seato medical general laboratory

พ.ศ. 2498 - 2505

(14) สม 1.2/4.4 - 4.11 กล่องที่ 100 แฟ้ม

เอกสารส่วนบุคคล ศาสตราจารย์นายแพทย์เสม พริ้งพวงแก้ว

สบ 1

2/4.11 คู่มือการตรวจทางห้องปฏิบัติการ (ชื่อเรื่อง)

Us component, Seato medical general laboratory

พ.ศ. 2505

จำนวน 43 แผ่น

แฟ้มที่ 10

กล่องที่ 2

ANNUAL REPORT

1961

US COMPONENT, SEATO MEDICAL GENERAL LABORATORY

BANGKOK, THAILAND.

MEDEC - ZHP

20 January 1962

To : Director
Walter Reed Army Institute of Research
Washington 12, D.C.

1. Submitted herewith a brief summary of the activities of this unit, a Walter Reed Army Institute of Research subactivity, for the calender year 1961.

2. Planning for the remaining part of FY 1962 has been carried out in accordance with directives received and additional budget approved by TWX.

3. It is requested that scientific data contained herein be considered a privileged communication and not be reprinted in any scientific publication without the consent of the Chief of the Department concerned.

4. Several pages of this report are marked FOR OFFICIAL USE ONLY. Please disregard this classification. The reason for it is that paper marked in advance FOR OFFICIAL USE ONLY was used to type the present report. There was a surplus of such paper and it was felt that it should not be thrown away. We have to save the American taxpayer's money.

5. Comments on this Report are invited.

Respectfully submitted,

Oscar Felsenfeld

Oscar Felsenfeld
Lt.Colonel,MC,USAR
Director of US Component.

DISTRIBUTION : E plus.

(1) Nurse Distribution — obligation for opening of Cardiac Clinic — Cytology —
(2) Changing in administration of Finance
view of others.
(3) [illegible] Pharmacy — [illegible]

History.

The SEATO Cholera Research Laboratory, Bangkok, Thailand, was transformed into the SEATO Medical Research Laboratory by an Exchange of Notes between the Royal Thai and the United States Governments, on 1 January 1961. The instruments concerned are : US Embassy Bangkok Note No. 1740 of 23 Dec 60 and Royal Thai Ministry of Foreign Affairs Note No. 31811 of 23 Dec 2503. Notes on Detailed Understanding (US/61/3 of 26 Jan 61 and RTMFA 3175 of 31 Jan 2504) were exchanged later.

The organization of the laboratory is shown in Tables 1 and 2. The Royal Thai Government was obligated by the Notes to appoint a Director General, replacing Dr. Luang Binbakya Bidyabhed, Director General of the SEATO Cholera Research Laboratory, and a Deputy (Executive) Director, to take the place of Lt.Colonel Oscar Felsenfeld,MC,USAR who was reassigned to the post of Director (Officer in Charge) of the US Component of the new SEATO Medical Research Laboratory. Colonel (now Major General) Pung Pintuyothin, RTA, was appointed Director General on 17 May 1961 and Captain Somrit Jatinandana, RTN, Deputy (Executive) Director in January 1962. The Advisory Committee which is supposed to outline the research trends of the laboratory has not been appointed as yet.

The laboratory started with a Thai and a US Component. The first committed itself to study leptospirosis, scrub typhus, plague and malaria; the second Thai hemorrhagic fever, the bionomics of mosquitoes, certain flukes (O. viverrini and F. buski) and enteric infections.

The US Component received from the Royal Thai Army Medical Corps laboratory space, certain furniture and fixtures, water supply, one cleaning woman and the services of one officer and two enlisted men to assist in the enteric project. The Transportation Corps of the Royal Thai Army furnished one Holden and one jeep, the latter being used also by the Thai Component. The Royal Thai Ministry of Health provided the services of an epidemiologist when needed, and generous hospitality in its hospitals and stations. Materials were provided and access to patients was granted in all Armed Forces, Ministry of Public Health and the local infectious disease hospitals.

The School of Public Health of the Department of Medical Sciences started a virus laboratory which is being endoved by the Rockefeller Foundation. Due to lack of space and animal housing and in order to reduce duplications in arbor virus work, it was most desirable to unify the virus project with that laboratory. The Virus Laboratory of Chulalongkorn Hospital Medical School, which is supported by a US Army Research and Development Grant, offered much cooperation. Thus the laboratory enlarged its scope and became better integrated with Thai research efforts.

Cooperation and coordination with other agencies and countries was most enjoyable and fruitful. The Officer in Charge of the US Component, while acting as a holdover from the SEATO Cholera Research Laboratory as Executive Director until the Thai Director General was appointed, had the privilege of negotiating the use of a US $10,000.00 grant made available by the British Government. The greater portion of this grant was designated to purchase equipment for the SEATO Medical Research Laboratory (a Revco deep freeze, a fluorescent microscope etc.), the smaller part for expenses of such U.K. scientists who will work in coordination with the laboratory. The British Embassy in Bangkok will handle this fund. The allocation of scientists from other SEATO countries (one each from Pakistan, the Republic of the Philippines and France) was also the task of the former Executive Director, while final arrangements for a mycologist from New Zealand will be handled by the present Directors.

The National Research Council of Thailand took interest in the program of the SEATO Medical Research Laboratory and discussed its projects, especially the point of possible duplications of programs carried out or intended to be undertaken by Thai scientists.

The US Component was able to offer certain support and services to other scientific agencies. For instance, in the beginning of the El Tor paracholera epidemic which swept out of China through Hong Kong and Macau to the Philippines, Sarawak, Borneo and which may or may not be connected with the El Tor disease in Java and on the Celebes, strains were received and identified in this laboratory. Since many of these were not entirely typical, the long-established cooperation with the cholera phage center at the Indian Institute for Biochemistry and Experimental Medicine in Calcutta was consulted and most willing and efficient cooperation obtained.

Assistance was rendered to the Department of Pathology of Irwin Hospital Medical School in Delhi, India, in differentiating coliform organisms isolated from blood.

A two-weeks training course was given in September to entomologic collectors of the Bangkok Municipality for its recently inaugurated pest control program by request of Royal Thai Government authorities, in cooperation with the School of Public Health. Nine trainees participated in it who were supplied also with reference materials.

The Department of Entomology was asked by the Ministry of Health to assist the Thai-WHO-UNICEF Trachoma Project by identifying insects which may propagate this disease and to study their bionomics in conjunction with the Trachoma Station in Korat. The station was visited by member of the US Component and insects were collected. No virologic or bacteriologic support was requested or offered.

Closer cooperation with upcountry hospitals and laboratories of the Ministry of Health was initiated in October. These hospitals were most cooperative in the past. With entomology and medical zoology collectors going into the field with increasing frequency, more and more supporting centers are needed. With the concurrence of the Director General of the SEATO Medical Research Laboratory, discussions were initiated between the Ministry of Health, the US Embassy SEATO Division, Directors of Walter Reed Army Institute of Research and members of the US Component, with favorable results.

The Director of the Society for Wildlife Conservation in Thailand made the services of one well-trained ornithologist available. He and his aids collected ectoparasites and blood samples from birds and wild animals for viral studies. The agreement stipulates that some birds and animals collected become the property of the Society. Unidentified animals will be submitted to experts outside Thailand at the expenses of the US Component, for classification. By nature of the entomologic material collected from birds and animals, it is expected that some of it will have to be submitted for study to specialists outside Thailand.

The Pasteur Institute (Queen Saovabha Institute, Red Cross) suggested cooperation in the field of arbor viruses since the horses used for serum production show antibodies against such microorganisms. These animals are kept in the Bang Phra (Cholburi) farm of the institute. Some of the horses were raised in Thailand, others were imported from Australia. Thus a study of acquiring arbor virus infections is feasible in these animals. The US Component will cooperate by training an entomologic technician and identifying virus isolates from blood and mosquitoes.

A horse-baited trap and a light trap were installed in Bang Phra, where a well-trained virologist of the Pasteur Institute will supervise the work and carry out primary isolations. Mosquito collections began in November.

It is hoped that time, personnel and funds permitting, further cooperative studies will be undertaken.

Financial Status.

Table 3 shows the expenditures during the year 1961.

The US Component is much indebted to the Office of the Naval Attaché, Executive Agent, Bangkok; to USOM Comptroller and Finance Sections, Bangkok; and to the Transportation Section of JUSMAG, Bangkok for the help rendered in local problems.

The funds assigned for this subactivity by Walter Reed Army Institute of Research were generous. An increase had to be requested at several occasions when local funds or funds available in Thai institutions for cooperative projects ran short. A substantial increase of funds during the fiscal year was necessitated by the unforeseen enlargement of the extent of arbor virus studies and by the need to set up the Department of Medical Zoology.

The US Component of the SEATO Medical Research Laboratory inherited the space occupied previously by the SEATO Cholera Research Laboratory in the northeast section of the Royal Thai Army Institute of Pathology.

In February, the Director of the Royal Thai Army of Pathology made one and one-half rooms available for a laboratory office and one room for the ladies lounge on the third floor, as well as one room for storage on the first floor of the building. The entire section was rewired, painted and repartitioned. In March, airconditioning units were put in as well as sinks, gas pipelines and furniture at the expenses of the US Component.

In June, one additional large room was made available for the library and the lecture hall which were equipped by the US Component but are used by all SEATO Medical Research Laboratory personnel. The utilities for these rooms are paid by the US Component. In the same month the toilets were put in order at the expense of Royal Thai Government.

Storage and parking space have been at a premium. Since the Virus Laboratory is obligated to maintain two years' supplies and the replenishment cycle is about 4 months for standard items, storage space is short. Storerooms of the US Embassy had to be utilized as depots since only two small rooms are available at the Royal Thai Army Institute of Pathology and only one cubicle in the Virus Laboratory for storage.

The expenses of reconstruction, partition, refurnishing, wiring etc. are so high that it would be more expedient to erect an entirely new laboratory building, especially since the floor of the main laboratory housed in the Royal Thai Army Institute of Pathology is too weak to carry heavy equipment. The School of Tropical Medicine is building an animal house next to the Virus Laboratory. It is expected that part of it will be used for the rapidly expanding arbor virus project.

Laboratory Equipment.

By consent of NIH/ICA/USOM and the Surgeon General of the US Army, the equipment owned by the United States and used by the SEATO Cholera Research Laboratory was transferred to the US Component of the SEATO Medical Research Laboratory.

Additional equipment was shipped from the United States, arriving in a continuous flow. It was frequently more expedient to buy certain items (refrigerators, airconditioners, animal cages, furniture a.o.) locally.

The intricacies of arbor virus work, the need of special equipment mainly deep freeze facilities and a large animal colony, necessitated the expenditure

of large sums for this project. While the influx of equipment was satisfactory, long delivery terms on Revco freezers, autoclaves a.o. items are still holding up the full development of that project.

Supplies for the Department of Entomology began to arrive in June. In the same month, the US Component had to install two new transformers in the building of the Royal Thai Army Institute of Pathology, to take care of the greatly increased consumption of electricity.

In August, the Royal Thai Government imposed a sales tax which became payable also for laboratory equipment and from which this component was not exempted until November.

An insectary was set up in October in the Department of Entomology. Small colonies of Aedes aegypti and Culex pipiens quinquefasciatus were established. Attempts to colonize Culex tritaeniorhynchus were postponed because of lack of time and some equipment still not received.

Some of the furniture and laboratory equipment in the space assigned to the US Component in the Royal Thai Army Institute of Pathology belongs to the Royal Thai Army and may have to be replaced soon by new pieces.

Airconditioning constitutes a problem and proved to be quite expensive. The same holds true concerning refrigerating equipment. Again, one new building constructed for special laboratory purposes, housing all departments, would have permitted saving on these items.

The Carpark of the US Component originally consisted of one Holden and one jeep assigned by the Royal Army Transportation Corps. The jeep is shared with the Thai Component.

Two Fords of 1948 and 1949 vintage, respectively, were received as gifts from USOM persons leaving the area, through the help of Mr. James R. McKee. They can be used only for in-city transportation.

Three Landrovers arrived in August. One staffcar came in November. All of them were put to immediate use.

US Personnel.

Lt.Colonel Oscar Felsenfeld, MC, assumed his duties with the establishment of the Laboratory, in January.

In February, 1961 Captain Stanley Grivers, MSC and M/Sgt Eugene D. Massey arrived from the Walter Reed Army Institute of Research, to serve as Administrative Officer and Technical & Supply Assistant, respectively. Mr. James R. McKee was lent by USOM as Purchasing Officer.

In July, Captain John E. Scanlon, MSC and SFC Adam C. Fulmer arrived, to work as Chief and NCO, respectively, of the Department of Entomology.

In September, Lt.Colonel Sidney Gaines, MSC arrived to be Chief of the Department of Bacteriology.

Captain Stanley Grivers departed in September. His functions were taken over by Captain Scanlon (Property Custodian), Lt.Colonel Gaines (Class A Agent), M/Sgt Massey (Supplies and Services) and Mr. McKee (other duties).

Captain Scott B. Halstead, MC, arrived in October to become Chief of the Department of Virology. S/Sgt Lenly D. Wetherald came also in October, to work as Animal Specialist and part-time Supply NCO.

Mr. Jame McKee left in October.

LFS (Local Hire) personnel steadily increased. It is expected that by 30 Jun 1962 it will reach 77 of whom 10 will be temporary employees for the city-wide hemorrhagic fever survey (Table 4).

It is unknown when US personnel will be brought up to full strength. One Virologist NCO, one Medical Zoologist Officer and one NCO, one Administrative Officer MSC one Administrative NCO and one Veterinary Corps Officer are expected to be assigned during the next quarter. There are no recent communications concerning a Pathologist.

Training.

When the SEATO Cholera Research Laboratory was transformed into the SEATO Medical Research Laboratory under a bilateral agreement, the Thai Ministry of Health, the Royal Thai Navy and the Royal Thai Air Force reassigned their personnel working on cholera to other projects outside the SEATO laboratory. Thus new bacteriologists had to be trained for the enteric project and the viral investigations which were first on the calender. The initial scientific staff of the US Component undertook this task, with the help of the Virus Laboratory at Chulalongkorn Hospital Medical School. A certain number of trained personnel were available in the Virus Laboratory of the School of Public Health and a few additional workers were hired prior to the arrival of the US Virologist by that laboratory to be ready when the project gets under way.

The Department of Entomology devoted much time to the training of collectors and technicians. In August, after the arrival of the US personnel of that department, four Thai field workers received on-the-job training. Later three Thai technicians were trained for entomologic procedures and put on the staff. In December, one technician of the Pasteur Institute was accepted for training. The Chief of the Department of Entomology was approached to admit graduate students of the School of Public Health, Bangkok, to work in his Department. Requests for training entomologic collectors for different Thai Government agencies are received constantly. Unfortunately, the shortage of supervisory personnel and space do not permit consideration of an extensive training program.

Standing Operating Procedures for supplies and services were published and complemented with Administrative Memoranda chiefly during June to September.

Technical Reports were submitted monthly. In addition, a FY 1961 Final Report was prepared and distributed. In September, a report on the activities of the US Component were summarized for the Director General of the SEATO Medical Research Laboratory, to form part of his annual report to the SEATO Council. A list of equipment owned by the US Government and used by the laboratory was also compiled by request of the Director General in December.

Inspections.

Colonel Abram S. Benenson, MC, Director of the Division of Communicable Disease and Immunology of the Walter Reed Army Institute of Research, Washington, D.C., inspected the laboratory during his one week's stay in Bangkok in April and discussed scientific and administrative matters with all concerned.

Lt.General Arthur G. Trudeau, Chief of Research and Development, Department of the Army, inspected the laboratory on 26 July. His visit was given broad coverage in the local press.

Lt.General Leonard D. Heaton, The Surgeon General of the US Army, inspected the laboratory and was briefed on its activities in November. Before, during

and after his stay Colonel Conn L. Milburn, Jr., Director of Walter Reed Army Institute of Research and Colonel A.S. Benenson were with the unit.

Symposium on Thai Hemorrhagic Fever.

During the first part of August, Dr. W. McD. Hammon of the Graduate School of the University of Pittsburg, Dr. A. Rudnick of the Hooper Foundation in San Francisco and Miss G.E. Sather of Dr. Hammon's staff spent two weeks collecting mosquitoes and sera. Laboratory and office space were made available by this Component. The Department of Entomology gave as much support as possible. Transportation and collectors were furnished by the Thai Ministry of Health.

A two-day symposium on Thai hemorrhagic fever was held under the co-sponsorship of this Component and the Thai Ministry of Health. Dr. Hammon and Dr. Kamthorn served as convenors. About 120 Thai physicians and medical students attended the meetings as well as some US physicians present in the area. The opening ceremony featured speeches by the Minister of Health and by the Secretary General of SEATO. Several members of the diplomatic corps were present. The ceremony was shown on the Thai Army television network. The proceedings will be published as a SEATO medical monograph.

Library.

Fourty scientific journals are being received from Walter Reed Army Institute of Research, 20 from the British Embassy in Bangkok, two from the Government of the Philippines and one each from the Governments of New Zealand and Pakistan, and from USOM Thailand.

Thirtyone books have been borrowed on permanent loan from the Walter Reed Library.

Scientific Relationships and Publications.

Lt.Colonel Oscar Felsenfeld participated in the Congress of Indian Microbiologists in Delhi, 31 March to 2 April, presiding over one section in Medical Microbiology, presenting a paper on staphylococcal antiendotoxin in the sera of Thai and Western inhabitants of Bangkok, and a contribution to the evaluation of El Tor vibrios.

Publications : Final Report, Thailand SEATO Cholera Research Laboratory. SEATO Monograph, 1962.

Antiphage activity of human cholera sera. O. Felsenfeld. Proc. Soc. Exptl. Biol. a. Med :, 106 : 175-177, 1961.

El Tor vibrios of the Ogawa subtype occurring in an epidemic of diarrhoea with vomiting in Ubol, Thailand. O. Felsenfeld, S. Jatanasen, S. Buspavanich, B. Thavaramara, S. Nanthavanij, F.M. Morgan and W. Paniom. J. Trop. Med. a. Hgy., 64 : 207-210, 1961.

Bladder stones in Thailand. S.B. Halstead. Am. J. Trop. Med. a. Hyg., 10 : 918-925, 1961.

APPENDIX.

THE DIRECTORS OF THE SEATO MEDICAL RESEARCH LABORATORY, BANGKOK.

PUNG PINTUYOTHIN, Director General.

Born 14 Dec 07 in Nan, Thailand. M.D. (Siriraj), Dipl.Bact.(Manchester). Resident in Pathology, Columbia U., Washington U. and Brooke Army Med. Center. Medical Officer, Royal Thai Army; Major General. At present also Director of the Royal Thai Army Institute of Pathology and Staff Physician to H.E. the Prime Minister of Thailand.

One scientific publication (thesis on dysentery bacilli). Member of the editorial board of the Journal of the Thai Army Medical Department. President of the Thai Branch, International Academy of Pathology. Member, Thai Medical Association, Association of Thai Military Surgeons, Microbiological Society of Thailand and the Thai Medical Research Council.

Second class Order of the White Elephant and third class Order of the Crown of Thailand.

SAMRIT JATINANDANA, Executive (Deputy) Director.

Born 28 Feb 1915 in Angthong, Thailand. M.D. (Siriraj), Dipl.Clin. Pathol. (London), Dipl. Trop.Med. & Hyg. (London). Ass't in Physiology, Siriraj University and Staff Physician, Railway Hosp. in Bangkok, before entering military service. Medical Officer, Royal Thai Navy; Captain. At present also Director of the Royal Thai Navy Clinical Pathology Laboratories.

Two scientific publications (on mycology and on urethritis). Member of the editorial board of the Royal Thai Navy Medical Journal. Member, Thai Branch, International Academy of Pathology, Thai Medical Association, Association of Thai Military Surgeons and Microbiological Society of Thailand.

OFFICERS OF THE US COMPONENT OF THE SEATO MEDICAL RESEARCH LABORATORY, BANGKOK. As of 1 January 1962.

OSCAR FELSENFELD, Officer-in-Charge (Director).

Born 21 May 09 in Wollersdorf, Austria. M.D. (Charles U.), M.Sc. (Charles U.), Dipl.Publ.Health (Czechosl.), Dipl.Trop.Med. (Marseilles); Postgraduate studies in Paris, London and Nashville, Tenn. Certified by Amer.Board in Pathol. (Clin.Path.) and US Army Command and General Staff College. Ass't, Charles Univ., Czechosl. Army and Czechosl.Publ.Health Service, later on internat.loan.Assoc.,Meharry Med.Coll. Ass't then Assoc.Prof., Chicago Med.School and Loyola Univ. Prof.Lecturer, U. of Illinois Med.Coll. and Graduate School. Director, Hektoen Inst. for Med.Research and the Trop.Med.Foundation. Visiting Professor, School of Trop.Med., San Juan, Puerto Rico and Univ.Coll. of the West Indies, Jamaica.Lieutenant Colonel, USAR; Colonel, AUS. Officer in Charge, 8003rd Far East Med.Res.Unit. Research Epidemiologist, Walter Reed Army Institute of Research.

Author or coauthor of 5 books and approx. 200 scientific papers on infectious diseases. Fellow, Coll.Amer.Pathol., Amer.Publ.Health Assoc., Amer.Soc.Clin.Pathol. and Royal Soc.Trop.Med. & Hyg. (London). Member of 14 US, European, Southamerican and Indian scientific societies. Honor. member, Kitasato Inst. (Tokyo), Acad.Med. Latine and Soc.Microbiol. del Sur.

Bronze Star, two Commandation Ribbons, War Cross, Order of the White Lion, Order of the White Eagle (second class) and Order of the Sun (third class). Schering fellowship, Schroder price, Ferran Scholar (Spain).

Listed in "Amer.Men of Science", "Who is who in the Midwest", "Who is who in American Education", "Who knows and what", "Bibliografias Cientificas" and "Outstanding Czechoslovaks".

SIDNEY GAINES, Chief, Department of Bacteriology.

Born 15 Jul 17 in Cleveland, Ohio. B.A. (Bact.,Ohio State), M.S. (Bact., Ohio State), Ph.D. (Bact., Ohio State). Dipl.Amer.Board of Microbiology. Officer, Medical Service Corps of the US Army; Lieutenant Colonel. With General Hosps in Europe during WWII, then Brooke General Hosp., Surgical Research Unit, Chief, Dept. of Microbiol., Div.Sp.Cpns. Walter Reed Army Institute of Research.

About 25 scientific publications in bacterial growth factors, bacterial immunology and extl. infections. Fellow, Amer.Acad.Microbiol. Member, Amer.Soc.Microbiol., Amer. Assoc.Immunol.,D.C.Branch of Soc.Exptl. Biol.a. Med. Sigma Xi, Phi Beta Kappa. Listed in "Amer.Men of Science".

JOHN EARL SCANLON, Chief, Department of Entomology.

Born 29 Nov 25 in New York,N.Y. B.S.(Fordham), M.S. (Cornell), Ph.D. (Maryland U.). Officer,Medical Service Corps of the US Army; Captain, 8003rd Far East Med.Res.Unit, First US Army Med.Lab., Army Med.Service School and Walter Reed Army Institute of Research.

Twelve scientific publications on arthropod borne viruses and their vectors; taxonomy and host relationships of Phthiraptera. Member of Entomol.Soc., Mosquito Control Assoc. and Amer.Soc.Trop.Med.a.Hyg.

Bronze Star, Combat Infantry Badge. Listed in "Amer.Men of Science".

SCOTT B. HALSTEAD, Chief, Department of Virology.

Born 23 Jun 30 in Lucknow, India. B.A.(Yale), M.D.(Columbia), Dipl. Amer.Board Med.Exam. Intern then Resident, Bellevue Hosp. Captain, USAR. Chief, Department of Virology, 406th Med.Gen.Lab. Dept. of Virology, Walter Reed Army Institute of Research.

Published 8 papers on arthropod borne viruses. Member, Am.Med.Assoc.

CHIRAPHUN DUANGMANI NEE PUNSONI, Research Bacteriologist.

Born 30 Oct 35 in Bangkok, Thailand. M.D. (Chulalongkorn U.). Vaccine and Serum Laboratory, Thai Ministry of Public Health.

Secretary, Thai Medical Women's Assoc. Member, Thai Med.Assoc. and Microbiol. Assoc. of Thailand.

Table I

ORGANIZATION OF LABORATORY

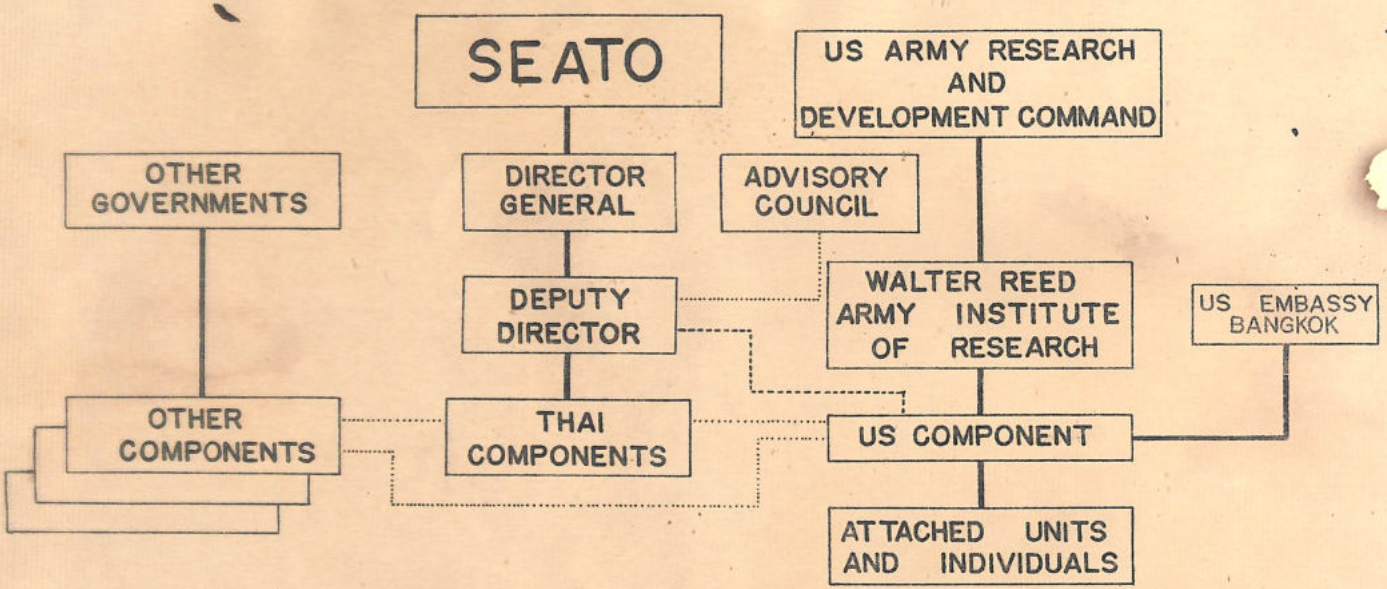
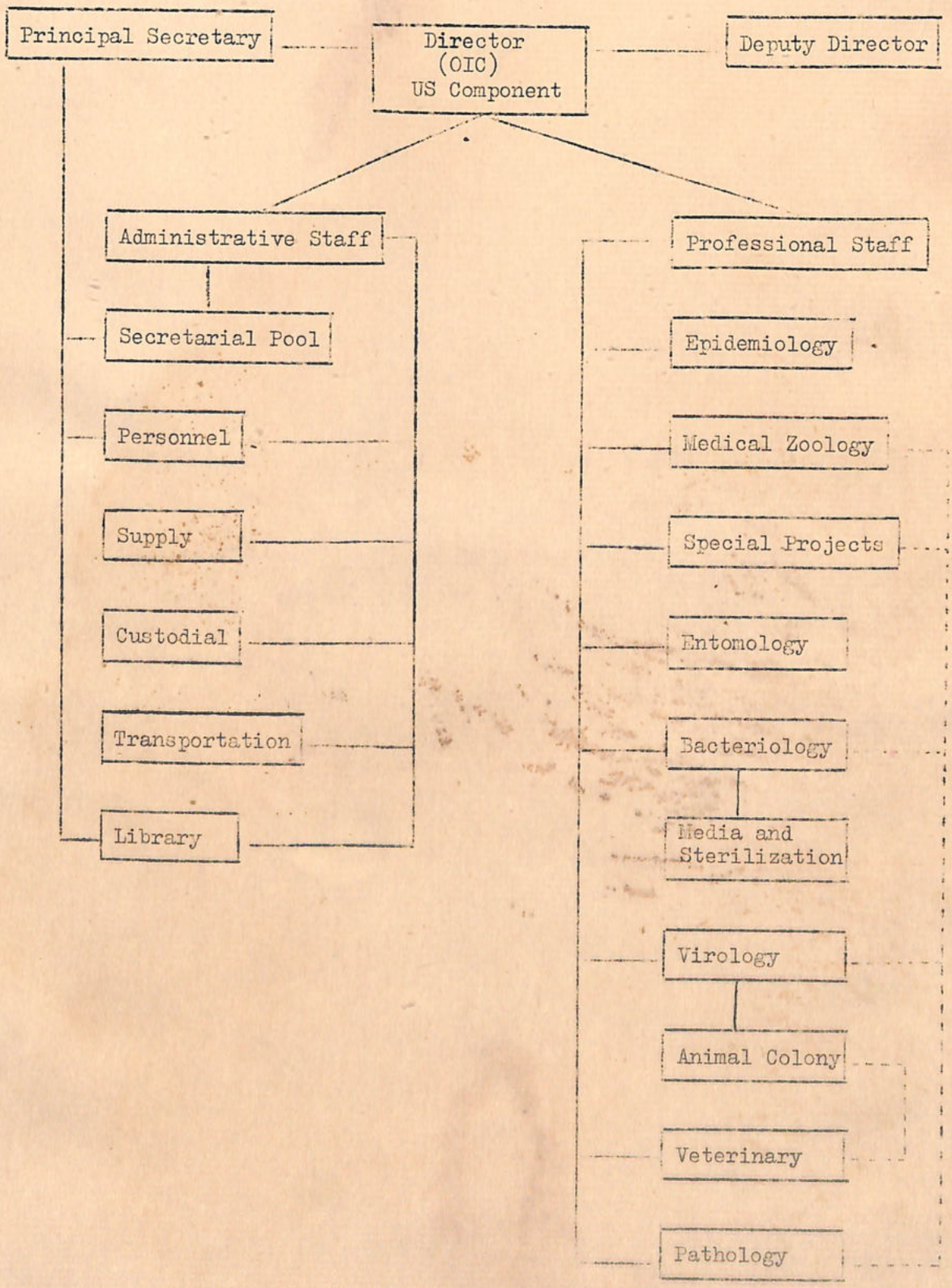


Table 2

T/D of US Component

SEATO Medical Research Laboratory



When a Veterinary Officer will be assigned, the Animal Colony will be under his command.

------- Cooperation with Pathologist

Table 3

EXPENDITURES DURING CALENDAR YEAR 1961

Item	USOM	WRAIR	R & D	Sum
Nonexpendable laboratory and office equipment, vehicle purchases	4,646.25	12,013.59	37,416.13	54,075.97
Media, chemicals, glassware a.o. expendable items	1,092.04	7,873.31	8,413.48	17,378.83
Shipping costs of equipment and expendables to Thailand	639.52	3,298.56	6,219.49	10,157.57
Salaries, wages, overtime	55.37	---	14,921.64	14,977.01
Office supplies and equipment, telephone	90.00	983.89	889.04	1,962.93
Books and journals	4.25	1,145.32	36.18	1,185.75
Printing	719.42	---	358.60	1,078.02
Electricity, bottled gas; drinking water	119.95	---	6,897.97	7,017.92
Transportation in Bangkok (POL, vehicle repairs, cabs)	82.37	---	2,885.50	2,967.87
Collecting trips outside Bangkok (within Thailand)	216.95	---	873.46	1,090.41
Travel outside Thailand	715.42	---	520.00	1,235.42
Shipment of materials to US research laboratories	249.03	---	264.12	513.15
Installation and alteration costs	---	---	3,445.80	3,445.80
Total	8,630.57	25,314.67	83,141.41	117,086.65

USOM = ICA/USOM cholera fund
WRAIR= Walter Reed Army Institute of Research
R & D= U.S. Army Medical Research and Development Command funds received through WRAIR

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Table 4

Personnel Present on 31 December 1961
and Projected for CY 1962.

	Fully paid by US											Partly paid by US			Paid by other Govts				Total										Sum		Pay scale
	Present					Projected						Present	Projected		Present				Projected										Present	Projected	
	A	B	E	V	S	A	B	E	M	V	S	V	V	S	A	B	V	S	A	B	V	S	A	B	E	V	S	all	all	
U.S. Officers	1	1	1	1		2	1	2	1	1	2								1	1	1	1	2	1	2	1	1	2	4	9	U.S. Armed Forces
U.S. NCOS	1		1		1	1	1	1	1	1	1								1		1		1	1	1	1	1	1	3	6	O & E
Thai A.C. MD'S		1					1				1	4[x]	4[x]	1[x]		1	1	2		1	1	2		2		5	2		4	6	FSL 4
Nurses											1																	1		1	FSL 4-5
Specialists			1					1	1												1				1	1			2	2	FSL 5-6
Lab. Techn.		3	1	1	1		3	2	2	4	1						1			1				3	1	2	1		7	13	FSL 8-9
Lab. Aid			2	1				2	2	1	1				2					2				2	2	2	1	1	6	8	FSL 9-10
Lab. Helper : Dishwasher		2		3			2			4							1			1				2		4		5	6	7	
Insect Collector			4					8													4						6		4	6	
Animal Collector								2		3																	2		3	5	FSL 11-13
Sample Collector										10[c]																		10		10	
Animal Caretaker		1		3	1		1		1	5	2						1			1		4	1		1		1	6	2	6	10	
Principal Secty.	1					1													1					1					1	1	FSL 4
Interpreter-Translator	1					1													1					1					1	1	FSL 5-6
Secretary	2					2													2					2					2	2	FSL 6-7
Bookkeeper						1																		1					1	1	FSL 5-8
Spec.typist						1[x]																		1[x]					1[x]		
Clerk-Typist	1			1		1				1									1		1			1			1		2	2	FSL 8-10
Draftsman-Librarian	1					1													1					1					1	1	FSL 8-10
Stock Clerk	1					1													1					1					1	1	FSL 9-10
Driver	3					4													3					4					3	4	FSL 11
Handyman	1					2													1					2			1		1	3	FSL 12-13
Cleaner															1				1					1					1	1	Thai Govt Scale
Technical personnel		8	10	10	3		9	18	8	29	9	4	4	1	1	3	4	2	1	3	4			11	10	18	5		12	18	8	37	12	44	87	
Admin. personnel	13			1		18				2									14			1		19					2		15	21	
Sum	13	8	10	11	3	18	9	18	8	31	9	4	4	1	1	3	4	2	1	3	4	2	14	11	10	19	5	19	12	18	8	39	12	59	108	
Total	45[#]					93[&]						4	5		10				10				59					108				

A = Administration B = Bacteriology E = Entomology M = Medical Zoology V = Virology S = Special Projects (incl. Epidemiology, Vet. Med., Pathology).

c = temporary employees, for a specific project
x = hourly wages or only overtime paid from Class A Fund, $20.- to 35.- / hr.
# = 37 on FSL payroll
& = 77 on FSL payroll

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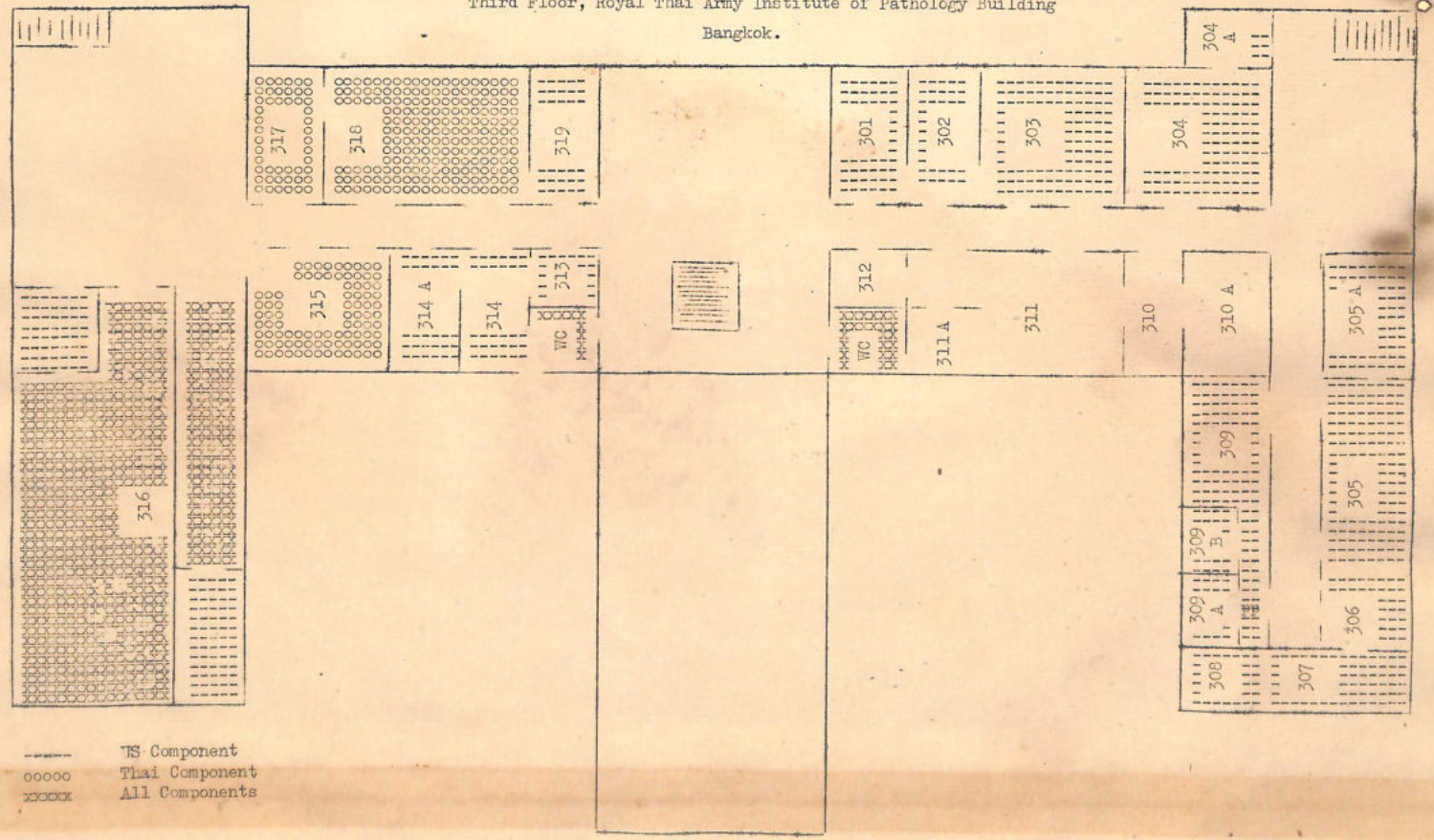
Table 5

Main SEATO Medical Research Laboratory

Third Floor, Royal Thai Army Institute of Pathology Building

Bangkok.



Appendix 1

DEPARTMENT OF BACTERIOLOGY

During the first months of the year training of new workers was the main problem. Actual performance consisted of sentinel studies of diarrheas in selected institutions. Materials were received from the two infectious disease hospitals (Prabumraj and Dhonburi) in the metropolitan area; from the Army and the Navy Hospitals and from the Children's Hospital of the Ministry of Health. In addition, outbreaks of diarrhea were studied whenever such cooperation was requested by the Thai authorities.

The routine examination of Bangkok river, canal (klong), tap and well water samples, as well as of water jars was discontinued in May when lack of US supervisory personnel became evident.

The Department of Bacteriology harbors one of the few Salmonella-Shigella typing centers in the area. It was beginning to type E. coli by the end of December. The Department is also planning to study stools from persons newly arriving in Thailand for the so-called normal intestinal flora, and to follow up 10 or 15 families during their stay in this country by monthly investigations. For comparison, Thai families living under poor and good socio-economic conditions will be examined periodically.

Outbreaks and Surveys.

1st Regiment, Royal Guard. There was an outbreak of diarrhea involving about 100 persons who ate in the mess of this regiment. A request for investigation was received two days after the event. From the 34 soldiers who still had diarrhea, 38 stools were collected. Salmonella weltevreden was isolated from 35 stools. There was no mortality. The outbreak represented the gastro-intestinal type of salmonellosis. While sanitation was at a low level, the source of the infection could not be ascertained.

Thaluang (Korat) had an outbreak of diarrhea in May. Three members of the US Component and a Thai government epidemiologist visited the area, where a cluster of villages was affected, 14 days after the first cases occurred. There were about 60 persons ill, of whom 2 died. The diarrhea was of short duration and appeared in houses along the river where fecalia are deposited. The examination of rectal swabs, food and water revealed Providencia organisms. The outbreak subsided after chlorinated lime was distributed for water purification.

Thai Army Academy. This outbreak was not investigated sufficiently since only samples of stools and food were available without pertinent data. About 30 students became suddenly ill with vomiting and diarrhea. Hemolytic Staphylocci were isolated from a sweet Thai dessert eaten by all of the afflicted men.

Khun Tod, Malung (Korat) had an outbreak of intestinal anthrax in 37 persons who became ill after eating the meat of two water buffaloes which succumbed to the disease. Six of the patients died.

Food handlers, Royal Thai Army Hospital. Thirty food handlers of the Royal Thai Army Hospital were examined for Salmonellae, Shigellae and Vibrios. One was found to harbor S. anatum.

Results of Salmonella-Shigella Sentinel Survey.

Tables 1, 2 and 3 show the results of this study. The most frequent Salmonella group was E in adults and group C in children. In both age groups Salmonellae belonging to the serologic group B occupied the second position. Of the individual strains, S. derby and S. typhosa headed the list. Since

23 different species were identified and 14 Salmonellae were untyped at the end of the year, it is evident that the 149 isolated strains showing a wide, scattered range, do not permit to draw conclusions as to their distribution in man.

While more Salmonellae were isolated from adults than from children, the latter yielded Shigellae more frequently.

Sh. sonnei was most often isolated. The absence of Sh. flexneri 1 and 6, the low number of Sh. flexneri 4 and the relative abundance of Sh. boydii serotypes were characteristic for the year 1961.

A comparison of the 1961 isolations with those in the two previous years in this laboratory will be published separately.

As stated previously, 317 Enterobacteriaceae were received from the Irwin Hospital Medical School in Delhi, India, and typed.

Vibrios.

Two strains of "true" Ogawa and one El Tor strain were isolated from klong water in Dhonburi in January. This klong, Klong Wang Lee, attracted much attention in the past, since it leads through an area with rather poor sanitation. There is a vegetable canning factory on its bank, the employees of which were known to suffer from diarrhea. Rectal swabs taken from them in February and repeat samples of water for 3 months did not yield cholera vibrios.

In February, the Department of Public Health reported one case of cholera in Nonburi, district Phra-Udom. An Ogawa strain was isolated from this patient. Swabs from contacts and water samples did not reveal cholera vibrios.

In September and October, 26 Vibrio cultures were received. Six came from Hong Kong, one from Macau, 14 from the Philippines and 5 from Indonesia. Their biochemical reactions were typical for Heiberg group 1 vibrios. All of them were hemolytic. Some, however, produced beta hemolysis slowly and were considered originally typical V. comma, Ogawa strains. More extensive studies of serial transplants and phage resistency examinations revealed that all were El Tor organisms.

Table 1

Salmonellae and Shigellae
Isolated from Acute Diarrhea Cases in
Adults and Children During 1961

	Number Examined	Salmonellae Isolated		Shigellae Isolated	
		Number	Percent	Number	Percent
Adults	749	90	12.0	22	2.9
Children	801	59	7.4	44	5.5
TOTAL	1550	149	9.6	66	4.3

Total Salmonellae isolated -- 149
From adults -- 90 (60.4%)
From children -- 59 (39.6%)

Total Shigellae isolated -- 66
From adults -- 22 (33.3%)
From children -- 44 (66.7%)

Table 2

Distribution of Salmonellae by
Groups in Acute Diarrhea Cases in
Adults and Children During 1961

Group	Adults		Children		Total	
	Number	Percent of Total Isolated	Number	Percent of Total Isolated	Number	Percent of Total Isolated
A	1	1.1	1	1.7	2	1.3
B	14	15.6	16	27.1	30	20.1
C	9	10.0	18	30.5	27	18.1
D	6	6.7	8	13.6	14	9.4
E	59 *	65.5	14	23.7	73	49.1
F	1	1.1			1	0.7
G			2	3.4	2	1.3
TOTAL	90	100.0	59	100.0	149	100.0

* = One outbreak with 38 S. weltevreden isolations.

Table 3

Salmonella Species Isolated from
Acute Diarrhea Cases in Adults and Children During 1961

Species	Group	Adults	Children	Total
S. paratyphi A	A	1	1	2
S. paratyphi B	B	3	1	4
S. typhimurium	B	6		6
S. derby	B	5	6	11
S. cairo	B		4	4
S. san-diego	B		2	2
S. st. paul	B		2	2
Salmonella B (not typed)	B		1	1
S. virchow	C_1		2	2
S. colindale	C_1	1		1
S. thompson	C_1	2		2
S. montevideo	C_1		6	6
S. tananarive	C_2	1	2	3
S. newport	C_2	1	1	2
S. bovismorbificans	C_2	1	7	8
Salmonella C_2 (not typed)	C_2	3		3
S. dublin	D		1	1
S. typhosa	D	5	6	11
Salmonella D (not typed)	D	1	1	2
Salmonella E (not typed)	E	4	1	5
S. meleagridis	E_1	5	4	9
S. anatum	E_1	5	3	8
S. lexington	E_1	5	3	8
S. weltevreden	E_1	38 *		38
S. manila	E_2	1	2	3
S. newington	E_2		1	1
S. senftenberg	E_4	1		1
Salmonella F (not typed)	F	1		1
Salmonella G (not typed)	G		2	2
TOTAL		90	59	149

* = 35 isolated from a single outbreak in January

Distribution of Shigellae in Acute Diarrhea Cases
in Adults and Children in Bangkok, Thailand During 1961

STRAIN	ADULTS		CHILDREN		TOTAL	
	Number	Percent of total isolated	Number	Percent of total isolated	Number	Percent of total isolated
Sh. flexneri 2	3	13.6	16	36.4	19	28.8
Sh. flexneri 3	3	13.6	5	11.4	8	12.2
Sh. flexneri 4			2	4.4	2	3.0
Sh. flexneri 5			1	2.3	1	1.5
Sh. boydii 1	2	9.1			2	3.0
Sh. boydii 2	3	13.6	1	2.3	4	6.1
Sh. sonnei	9	41.0	18	40.9	27	40.9
Alkalescens-Dispar	2	9.1	1	2.3	3	4.5
TOTAL	22	100.0	44	100.0	66	100.0

DEPARTMENT OF ENTOMOLOGY.

This department started functioning on 7 August. Four local field workers received on-the-job training and one Thai technician with some entomologic background was hired and trained. Since most of the equipment of this Department was shipped well ahead, work could be started as soon as US personnel arrived from the US.

At first departmental activities were concentrated on collections in the Bangkok-Dhonburi area. Larval, light trap, man and cattle biting and resting collections were inaugurated.

Klongs, ditches, rice fields, water jars and other receptacles around houses were the sites of larval collections. Three New Jersey light traps were set up in varying habitats of Bangkok; one in Dhonburi. A Walter Reed Institute type light trap was operated at Chulalongkorn Hospital to provide live mosquitoes for virus studies.

Biting collections were made simultaneously indoors and outdoors, from man and cattle, emphasizing both day and night collections.

Resting collections were made in human habitations, cow sheds, chicken coopes, pig and duck shelters at various times of the day, with emphasis on early morning hours.

Primary interest was centered on slum areas, particularily where Thai hemorrhagic fever has been reported, or where the mosquito population has been noted to be particularily high.

Samples of mosquitoes from resting and biting collections were preserved in sealed ampoules in a dry-ice chest for virus studies at the SEATO laboratory as well as at the virus laboratory at Chulalongkorn Hospital. Previous studies, the nature and locality of the collections led to a concentration on Culex pipiens quinquefasciatus and Aedes aegypti preservation for this purpose. In the larger collections, a system of volumetric aliquots has been used to speed up identifications.

In December, final plans were made for a change in operations to coincide with the survey program of the Department of Virology planned to begin in January. Five study areas have been selected in the city for continuous close scrutiny through the year. This will require the relocation of some of the light traps and collections sites used during the preceding five months.

A summary of survey operations during this initial five month period is in preparation for a future scientific report. Examination of breeding sites of Culex pipiens quinquefasciatus, Anopheles vagus, Culex tritaeniorhynchus and other ground water breeding species indicated a considerable decrease in available breeding sites in late December. This appears to be reflected in a decrease in numbers of these species late in December.but further collections will be needed to verify this point. A noticeable increase in the most common species of mosquitoes in the city occured in mid-December, undoubtedly due to the partial flooding of large portions of the city in late November and early December. Severl species were identified by us from Bangkok for the first time in December, including: Culex (Mocthogenes) malayi, Culex (Culex) whitmorei, Culex (Culiciomyia) nigropunctatus, Mansonia (Coquillettidia) crassipes and Uranotaenia orientalis. This brings the number of species of mosquitoes identified in our Bangkok collections to fifth-four, with several doubtful specimens still to be resolved. The overall picture of abundance of the species most likely to be involved in the transmission of human disease continues unchanged, as will be noted in the tables on biting collections and resting collections. As expected, the seasonal changes thus far detected are of a low magnitude as sompared with fluctuations in the same species in higher altitudes.

There have been relatively minor shifts in the qualitiative aspects of the collections as well, especially in the relative abundance of the members of the Anopheles 'hyrcanus' group. A summary of the collections of mosquitoes in Bangkok will be found in Table 1 to 6.

Field Studies.

In October, approximately eighteen man-days were spent in s series of collections in the area from Pak Chong to Sikew to Korat, at the edge of the plateau region of Northeastern Thailand. These collections took place at the end of the rainy season, while numerous ground water collections were present, and they will be contrasted with the mosquito picture at later phases of the dry season. It is anticipated that the mosquito fauna will change much more drastically in this area than in the nearby central lowlands which retain a great deal of ground water through the year. In the city of Korat Culex pipiens quinquefasciatus, Aedes aegypti and Anopheles vagus were predominant in resting collections in low income houses; a situation essentially like that in Bangkok. In more rural localities, and in collections from animals Culex tritaeniorhynchus, C.fuscocephalus, Anopheles vagus and An. aconitus predominated. The finding of Aedes albopictus and Armigeres subalbatus in light traps is somewhat unusual. The list of the mosquitoes collected is contained in Table 7.

While in the Korat region, contact was made with the Thai WHO-UNICEF Trachoma Control Project personnel and a small number of eye gnats of the family Chloropidae were collected. Arrangements have been made for collection of additional specimens and for a possible routine population survey.

Nan-Prae. More extensive field studies were conducted in the forested areas in the Provinces of Nan and Prae in northern Thailand in November. Birds and mammals were collected for ectoparasites and blood specimens for serological examination. In addition to mosquitoes, black flies and other biting flies were collected during a two week period in late November. These studies were continued in early December. The area in question lies just west of the Thai-Laos border, at elevations of approximately 500 to 1,500 feet. The terrain and vegetation cover a range from rice paddy areas along the Nan and smaller rivers, through upland rice fields and scrub to fairly large secondary growth deciduous forests of teak and dipterocarpus. A slash-and-burn type of agriculture is widely practised by the villagers in the area and no stands of primary forest were seen. Timber cutting, chiefly for teak, is extensive in the region. Malaria, chiefly P. falciparum with some P. vivax, is present in the area, especially in the more remote villages.

Anopheles minimus is presumed to be the most important malaria vector in the area, while An. balabacensis and An. maculatus are possible secondary vectors. Aedes aegypti was collected in village homes, while Aedes albopictus was collected biting man on the forest fringe. Biting activity, day or night, was at a very low level in the forest. Night biting collections in the villages at the forest fringe produced Anopheles species only.

In addition to mosquitoes, large numbers of Culicoides and a few Simuli idae were collected but one of these was taken biting man. A list of the species of birds and mammals collected will be found in Table 8. The ectoparasites collected will be sent to specialists for identification, in order to add to the compilation of the arthropods of medical importance in Thailand. Studies of biting Diptera, mammal and bird ectoparasites were continued in the area during December. Personnel of this Department was joined by one Entomologist and two technicians from the US Army Medical Research

Research Unit, Kuala Lumpur, Malaya (USAMRU) from 5 December to 14 December. The USAMRU personnel were interested in determining the presence of chiggers in the area, both by the examination of captured mammals and birds, and by use of "bait" rabbits. Several species of chiggers, including Trombicula, were collected, by both methods. All of the chiggers collected by personnel of this Department will also be turned over to the USAMRU group for identification. Mammal and bird collections were completed in the area on 23 December, and will not be undertaken again in the near future. A list of all of the 210 specimens of birds and 50 mammal specimens collected will be found in Table 8. Blood samples on filter paper were obtained from all specimens. Small numbers of mosquitoes and other biting Diptera were collected in December, in addition to those reported in November. Identification of all of the mosquitoes from these collections has been completed. Light traps and human biting collections yielded very poor results throughout the study, due to the progressive drying of the area and the low evening and night temperatures (as low as 42°F on 16 December). Biting activity by other Diptera was nil. A list of the species of mosquitoes thus far identified from the area is presented in Table 8a. A large number of larvae were also collected and have been prepared for identification, but this phase of the work has not been completed as yet.

The region in question lies between latitude 17° and 18° North, along the drainages of the Nan and Yom rivers. This region of Thailand is characterized by north-south oriented ridges, seperating rivers which eventually from the main sourse of the Menam Chao Phrya to the south. The intervening ridges are not high enough to support a characteristic montane fauna, and the vegetation cover is chiefly Pa daeng or "red jungle" consisting of open forests of small to medium size trees, chiefly Dipterocarpaceae. Much of the area has been cut-over one or more times; leaving extensive stretches of secondary growth of Eupatorium and Imperata (lalang grass). The latter is of particular interest because of its traditional association with chiggers and scrub typhus. The soil throughout the region is poor, consisting of sand and lateritic soils, with relatively little top soil. The many small streams which dissect the region provide breeding places for Anopheles minimus, and this species was taken biting man, together with the presumed secondary vectors An. balabacensis and An. maculatus. Bamboo brakes along the water courses and at intervals in the forest provided cover and breeding sites for Aedes albopictus and Armigeres subalbatus. The mosquito population is doubtless much higher in the rainy season. In the villages in the area only Culex pipiens quinquefasciatus and Aedes aegypti were collected in morning resting collections, but Anopheles species were collected outside the houses in the evenings, and undoubtably some enter houses to feed. Almost all residences in the region, including some quite remote villages, were marked as having received a residual spray of DDT within the past year. Nevertheless, there are still a number of cases of benign tertian and malignant tertian malaria reported from the region each year. The medical entomologic problems most likely to occur in the area include malaria, dengue, and, with the finding of Trombicula, the possible chigger-vector, scrub typhus. The latter disease has not been detected in the area as yet, and the status of dengue-like fevers has not been determined. A report of the ectoparasites collected from the birds and mammals in the area will be prepared when identifications have been received from specialists.

Bang Phra. A horse-baited mosquito bait trap and a light trap were placed in operation at the stables of the Pasteur Institute at Bang Phra, Cholburi, on 12 December, and some of the mosquito collections have been examined. The light trap employed is one which was constructed at Walter Reed Army Institute and designed to capture mosquitoes and other Diptera alive, so that they may be used in virus isolation experiments. Until a trained technician is available at Bang Phra for identification of the mosquitoes, they are being preserved for identification at Bangkok. At a later date the living mosquitoes will be processed for virus isolation at Bang Phra, with only the difficult or unusual species being preserved for identification at Bangkok. Results of the first five nights of light trapping are as

follows: Culex gelidus (2172), C. tritaeniorhynchus (802), C. fuscocephalus (141), all other species (57). Thus over 93.7% of the mosquitoes taken so far consisted of the two suspected vectors of Japanese B encephalitis, C. tritaeniorhynchus and C. gelidus. The bait trap has been operated only one night during this period, and at that time yielded only a single specimen of C. gelidus and a Stegomyia species which appeared to be Aedes albopictus. The trap is still quite new, and may require much additional use before a fair assessment can be made of its usefulness.

Singapore and Kuala Lumpur. The Chief of the Department visited in December the University of Malaya, in Singapore, where he examined the mosquito collection of the University. He also visited the US Army Medical Research Unit in Kuala Lumpur to establish liaison.

Mosquitoes collected for virus isolation are listed in Table 9.

Table 1

Mosquito Collections in Bangkok. August-December 1961

Weekly Operations

Week of	Total	Light Trap	Resting	Human Biting	Animal Biting	Larvae
6-12 Aug.	81	6	37	8	2	28
13-19 Aug.	76	12	40	11	6	7
20-26 Aug.	124	12	60	17	1	34
27 Aug. - 2 Sept.	94	16	25	27	2	24
3-9 Sept	69	13	19	4	2	22
10-16 Sept.	114	18	38	19	4	35
17-23 Sept.	123	18	35	20	4	46
24-30 Sept.	206	18	67	57	6	58
1-7 Oct.	121	18	43	20	4	36
8-14 Oct.	146	17	58	23	4	44
15-21 Oct.	95	16	40	13	4	22
22-28 Oct.	85	16	32	6	4	27
29 Oct. - 4 Nov.	133	16	51	16	8	42
5-11 Nov.	111	16	47	14	4	30
12-18 Nov.	94	16	38	16	6	18
19-25 Nov.	65	16	24	6	6	13
26 Nov. - 2 Dec.	79	16	29	8	6	20
3-9 Dec.	65	16	28	6	6	9
10-16 Dec.	56	16	24	4	6	6
17-23 Dec.	90	16	40	16	6	12
24-31 Dec.	67	17	20	10	4	16
TOTALS	2085	325	795	321	95	549

Table 2

Light Trap Collections - Bangkok - August-September 1961 - Five Species Most Commonly Collected

Week of	No. Colls.	Total Identified		Anopheles Vagus		Culex Gelidus		Culex Quinquefasciatus		Culex Tritaeniorhynchus		Mansonia Uniformis	
		F	M	F	M	F	M	F	M	F	M	F	M
6-12 Aug	6	2537	356	6	9	191	37	-	-	1951	176	289	103
13-19 Aug	12	2140	966	86	7	283	81	181	123	1179	319	187	272
20-26 Aug	12	1215	410	24	26	97	33	154	48	753	181	75	46
27 Aug-2 Sep	16	2507	668	30	18	297	145	152	60	1644	371	275	29
3-9 Sept	13	2323	807	28	36	285	77	173	135	1614	438	90	55
10 Sept	18	4048	2511	74	63	432	478	221	183	2416	1216	171	74
17-23 Sept	18	4012	2244	48	46	648	204	253	85	2421	1625	194	86
24-30 Sept	18	2008	1932	32	46	301	213	122	79	781	961	184	114
1-7 Oct	18	2228	1126	34	7	406	191	88	59	679	327	409	36
8-14 Oct	17	1146	940	24	27	170	143	280	284	350	264	77	74
15-21 Oct	16	2714	2368	14	--	929	882	246	215	910	782	142	100
22-28 Oct	16	1718	1710	4	23	732	731	185	165	442	494	134	148
29 Oct.-4 Nov.	16	6216	5496	36	365	2691	1986	366	415	2048	1889	416	431
5-11 Nov.	16	4176	2712	7	57	1906	1229	324	301	1166	573	248	246
12-18 Nov.	16	6907	4311	35	135	2277	1667	1434	797	1964	954	364	361
19-25 Nov.	16	1214	912	4	72	367	228	522	393	144	114	46	54
26-Nov.-2 Dec.	16	6426	2949	19	42	2012	895	2018	1231	1772	339	3003	294
3-9 Dec.	16	3516	1310	53	40	1013	345	646	460	1156	159	203	204
10-16 Dec.	16	9207	1687	97	41	3025	448	713	437	4199	226	383	383
17-23 Dec.	16	1316	610	12	9	200	134	321	186	434	106	91	68
24-31 Dec.	17	8890	1812	24	14	1186	380	869	460	4994	364	111	193
TOTALS	325	76789	37831	691	1083	19448	10527	9268	6116	33017	11878	4389	3371

Table 3

Mosquito Resting Collections, Bangkok, August - December 1961

Species	August		September		October		November		December		TOTAL	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Aedes aegypti	211	116	246	85	257	90	209	91	356	208	1279	590
Aedes albopictus	1	-	-	-	1	-	-	-	-	-	2	-
Anopheles aconitus	1	-	-	-	-	-	-	-	-	-	1	-
Anopheles annularis	2	-	33	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	39	-
Anopheles argyropus	3	-	-	-	-	-	-	-	-	-	3	-
Anopheles barbirostris	-	-	-	-	1	-	-	-	1	-	2	-
Anopheles nigerrimus	-	-	12	-	1	-	-	-	-	-	13	-
Anopheles sinensis	2	-	2	-	-	2	1	-	-	-	5	2
Anopheles subpictus malayensis	11	3	-	-	-	-	-	-	-	-	11	3
Anopheles tessellatus	-	-	1	-	-	-	-	-	-	-	1	-
Anopheles vagus	48	18	270	11	11	2	40	11	-	2	369	44
Anopheles sp.	-	1	-	-	1	-	-	-	-	-	1	1
Armigeres subalbatus	24	6	57	7	135	31	73	11	9	1	298	56
Culex bitaeniorhynchus	-	-	1	-	-	-	-	-	-	-	1	-
Culex brevipalpis	2	-	-	1	3	2	2	[illegible]	[illegible]	-	7	4
Culex fuscanus	-	1	1	-	1	2	3	1	2	-	7	4
Culex fuscocephalus	4	3	20	25	2	-	-	-	-	-	26	28
Culex gelidus	37	4	153	11	15	11	3	-	2	-	210	26
Culex halifaxii	-	-	-	-	3	1	-	-	-	1	3	2
Culex pipiens quinquefasciatus	2528	2067	4587	4015	6856	4629	8712	5976	4766	3137	27,449	19,824
Culex sitiens	-	-	-	-	18	1	-	-	-	-	18	1
Culex tritaeniorhynchus	152	14	292	16	21	4	4	-	2	1	471	35
Culex sp.	-	1	1	-	3	-	2	-	-	-	6	1
Ficalbia hybrida	1	-	-	1	-	-	-	-	-	-	1	1
Ficalbia luzonensis	-	-	-	-	1	1	-	-	-	-	1	1
Ficalbia minima	2	-	-	-	-	-	-	-	-	-	2	-
Masonia annulifera	10	1	7	-	7	-	-	-	-	-	24	1
Masonia indiana	2	1	1	-	[illegible]	-	-	-	1	-	4	1
Masonia uniformis	161	28	122	56	32	4	2	1	1	-	318	89
Toxorhynchites splendens	-	-	9	20	-	-	-	-	-	-	9	20
Unidentified	1	1	-	-	-	-	-	-	-	-	1	1
TOTAL	3203	2265	5815	4248	7370	4780	9052	6092	5142	3350	30,582	20,735

Table 4

Mosquito Human-Biting Collections, Bangkok, August-December 1961

Species	Aug	Sept	Oct	Nov	Dec	TOTAL
Aedes (Stegomyia) albopictus	2	-	-	-	-	2
Aedes (Aedmorphus) taeniorhynchoides	1	-	-	-	-	1
Aedes (Stegomyia) aegypti	1	21	-	-	-	22
Aedes sp. ?	-	1	-	-	-	1
Anopheles (Anopheles) argyropus	1	1	-	-	-	2
Anopheles (Anopheles) barbirostris	1	2	-	-	-	2
Anopheles (Anopheles) nigerrimus	-	-	2	-	1	3
Anopheles (Anopheles) peditaeniatus	-	-	-	-	2	2
Anopheles (Anopheles) sinensis	-	-	-	-	1	1
Anopheles (Cellia) aconitus	-	-	-	-	1	1
Anopheles (Cellia) annularis	1	2	-	2	-	5
Anopheles (Cellia) vagus	5	1	-	3	7	16
Armigeres (Armigeres) subalbatus	207	405	4	9	-	625
Culex (Culex) bitaeniorhynchus	-	1	1	-	-	2
Culex (Culex) gelidus	1	13	18	11	5	48
Culex (Culex) pipiens quinquefasciatus	848	1382	1499	2368	1782	7879
Culex (Culex) sinensis	1	-	-	-	-	1
Culex (Culex) sitiens	-	1	18	2	-	21
Culex (Culex) tritaeniorhynchus	11	71	50	35	6	173
Culex (Lutzia) fuscanus	1	-	-	-	-	1
Culex (Neoculex) brevipalpis	-	1	-	-	-	1
Culex sp. ?	-	3	-	-	-	3
Mansonia (Mansonioides) annulifera	8	9	11	6	3	37
Mansonia (Mansonioides) indiana	3	3	12	34	56	108
Mansonia (Mansonioides) uniformis	81	57	91	104	18	351
TOTALS	1172	1974	1706	2574	1882	9308

Table 5

Mosquito Animal-Biting Collections, Bangkok, August-December 1961

Species	Aug	Sept	Oct	Nov	Dec	TOTALS
Aedes (Neomelaniconion) lineatopennis	-	-	1	-	-	1
Aedes (Stegomyia) aegypti	-	-	-	1	-	1
Anopheles (Anopheles) argyropus	12	1	7	12	29	61
Anopheles (Anopheles) barbirostris	-	1	1	-	-	2
Anopheles (Anopheles) nigerrimus	1	6	10	18	13	48
Anopheles (Anopheles) peditaeniatus	3	-	5	8	23	39
Anopheles (Anopheles) sinensis	4	7	6	3	4	24
Anopheles (Cellia) aconitus	1	-	-	-	2	3
Anopheles (Cellia) annularis	8	19	26	20	4	77
Anopheles (Cellia) subpictus malayensis	7	9	-	-	-	16
Anopheles (Cellia) vagus	175	382	36	322	137	1072
Anopheles sp. ?	2	1	2	1	-	6
Armigeres (Armigeres) subalbatus	1	-	1	3	2	7
Culex (Culex) bitaeniorhynchus	-	3	1	1	-	5
Culex (Culex) fuscocephalus	2	15	20	17	13	67
Culex (Culex) gelidus	93	187	237	496	254	1267
Culex (Culex) pipiens quinquefasciatus	6	-	1	29	208	244
Culex (Culex) sinensis	-	-	-	-	1	1
Culex (Culex) sitiens	-	1	2	1	-	4
Culex (Culex) tritaeniorhynchus	477	355	352	608	618	2410
Culex (Lutzia) fuscanus	-	1	-	-	-	1
Culex sp. ?	-	-	2	-	-	2
Ficalbia (Mimomyia) hybrida	-	1	-	-	-	1
Mansonia (Mansonioides) annulifera	6	3	2	19	6	36
Mansonia (Mansonioides) indiana	-	9	7	18	12	46
Mansonia (Mansonioides) uniformis	201	219	451	968	306	2145
TOTALS	999	1220	1190	2545	1632	7586

Table 6

Species of Mosquitoes Collected in Bangkok, August to December, 1961

1. Aedomyia catasticta Knab
2. Aedes (Aedimorphus) mediolineatus (Theo)
3. Aedes (Aedimorphus) taeniorhynchoides (Christophers)
4. Aedes (Aedimorphus) vaxans (Meigen)
5. Aedes (Neomelaniconion) lineatopennis (Ludlow)
6. Aedes (Stegomyia) aegypti (Linnaeus)
7. Aedes (Stegomyia) albopictus (Skuse)
8. Anopheles (Anopheles) argyropus (Swellengrebel)
9. Anopheles (Anopheles) barbirostris Van der Wulp
10. Anopheles (Anopheles) nigerrimus Giles
11. Anopheles (Anopheles) peditaeniatus (Leicester)
12. Anopheles (Anopheles) sinensis Wiedemann
13. Anopheles (Cellia) aconitus Donitz
14. Anopheles (Cellia) annularis Van der Wulp
15. Anopheles (Cellia) kochi Donitz
16. Anopheles (Cellia) philippinensis Ludlow
17. Anopheles (Cellia) subpictus malayensis Hacker
18. Anopheles (Cellia) tessellatus Theobald
19. Anopheles (Cellia) vagus Donitz
20. Armigeres (Armigeres) subalbatus (Coquillett)
21. Culex (Culex) annulus Theobald
22. Culex (Culex) bitaeniorhynchus Giles
23. Culex (Culex) fuscitarsis Barraud
24. Culex (Culex) fuscocephalus Theobald
25. Culex (Culex) gelidus Theobald
26. Culex (Culex) pipiens quinquefasciatus Say
27. Culex (Culex) pseudovishnui Colless
28. Culex (Culex) sinensis Theobald
29. Culex (Culex) sitiens Wiedemann
30. Culex (Culex) tritaeniorhynchus summorosus Dyar
31. Culex (Culex) whitmorei (Giles)
32. Culex (Culiciomyia) nigropunctatus Edwards
33. Culex (Lophoceraomyia) fraudatrix (Theobald)*
34. Culex (Lophoceraomyia) rubithoracis (Leicester)
35. Culex (Lophoceraomyia) species C
36. Culex (Lutzia) fuscanus Wiedemann
37. Culex (Lutzia) halifaxii Theobald
38. Culex (Mocthogenes) malayi
39. Culex (Neoculex) brevipalpis (Giles)
40. Ficalbia (Etorleptiomyia) luzonensis (Ludlow)

Table 6 (cont.)

41. Ficalbia (Ficalbia) minima (Theobald)
42. Ficalbia (Mimomyia) chamberlaini (Ludlow)
43. Ficalbia (Mimomyia) hybrida (Leicester)
44. Mansonia (Coquillettidia) crassipes (Van der Wulp)
45. Mansonia (Mansonioides) annulifera (Theobald)
46. Mansonia (Mansonioides) indiana Edwards
47. Mansonia (Mansonioides) uniformis (Theobald)
48. Malaya genurostris Leicester
49. Toxorhynchites (Toxorhynchites) splendens
50. Uranotaenia campestris Leicester
51. Uranotaenia edwardsi Barraud
52. Uranotaenia lateralis Ludlow
53. Uranotaenia orientalis Barraud
54. Uranotaenia recondita Edwards

Table 7

Mosquito Collections in the Korat-Sikew Area, Thailand. October, 1961

Species	Light Trap	Resting	Biting	Larval
Aedes aegypti				+
Aedes albopictus	+			+
Aedes lineatopennis	+	+	+	
Aedes mediolineatus *	+	+	+	
Aedes vexans *	+	+		+
Anopheles aconitus	+	+	+	
Anopheles barbirostris	+	+		
Anopheles kochi	+	+		
Anopheles nigerrimus	+			
Anopheles peditaeniatus		+	+	
Anopheles philippinensis		+		
Anopheles sinensis	+			
Anopheles tessellatus	+			
Anopheles vagus	+	+	+	+
Armigeres subalbatus	+			+
Culex bitaeniorhynchus				+
Culex brevipalpis				+
Culex fuscanus				+
Culex fuscitarsis	+			+
Culex fuscocephalus	+	+	+	+
Culex gelidus	+	+	+	
Culex pipiens quinquefasciatus		+		+
Culex pseudovishnui	+		+	+
Culex sinensis	+			
Culex sitiens		+		
Culex tritaeniorhynchus	+	+	+	+
Culex whitmorei *	+	+	+	
Malaya genurostris				+
Mansonia annulfera		+		
Mansonia indiana	+	+		
Mansonia uniformis	+	+	+	
Toxorhynchites splendens				+
Uranotaenia campestris	+			+

* Species not reported from Bangkok

Table 8

Birds, Mammals, and Ectoparasites Collected from Nan and Prae, Nov.-Dec. 1961

Order Passeriformes.	
Fam. Corvidae.	
Crypsirina temia	1/1.*
Fam. Sittidae.	
Sitta frontalis	1/2.
Fam. Paridae.	
Melanochlora sultanea	0/2.
Fam. Timalidae.	
Garrulax leucolophus	3/3.
Garrulax moniliger	2/3.
Macronus gularis	0/6.
Pellorneum ruficeps	3/3.
Pomatorhinus hypoleucos	1/1.
Pomatorhinus montanus	0/2.
Yuhina zantholeuca	0/1.
Fam. Aegithinidae.	
Aegithina tiphia	1/2.
Chloropsis aurifrons	5/9.
Fam. Pycnonotidae.	
Pycnonotus jocosus	2/2.
Pycnonotus blanfordi	2/3.
Pycnonotus finlaysoni	0/1.
Pycnonotus aurigaster	0/1.
Pycnonotus melanicterus	5/7.
Microscelis charlottae	2/2.
Fam. Turidae.	
Luscinia calliope	1/1.
Luscinia cyane	1/2.
Saxicola torquata	0/1.
Saxicola ferrea	2/2.
Monticola solitarius	1/3.
Myiophoneus corruleus	0/1.
Copsychus saularis	1/2.
Copsychus malabaricus	8/9.
Fam. Muscicapidae.	
Muscicapa parva	0/4.
Muscicapa hainana	2/2.
Muscicapa thalassina	1/1.
Hypothymis azurea	2/4.
Culicicapa ceylonensis	1/3.
Fam. Laniidae.	
Lanius cristatus	0/2.
Fam. Campephagidae	
Pericrocotus flammeus	2/2.
Pericrocotus roseus	33/4.
Hemipus picatus	2/2.
Coracina polioptera (?)	0/1.
Fam. Dicruridae.	
Dicrurus leucophaeus	3/4.
Dicrurus aeneus	1/2.
Dicrurus remifer	2/2.
Dicrurus hottentottus	6/6.
Dicrurus paradiseus	3/3.
Fam. Sylviidae	
Phylloscopus fuscatus	3/5.
Phylloscopus inornatus (?)	0/3.
Seicercus burkei	0/1.
Orthotomus sutorius	0/1.
Acrocephalus sp.	0/1.

* 1/1 = number of hosts with ectoparasites/number of hosts examined.

Fam. Oriolidae	
Oriolus chinensis	2/2.
Oriolus xanthornus	1/3.
Fam. Sturnidae.	
Sturnus malabaricus	5/5.
Fam. Ploeceidae.	
Passer montanus	0/1.
Lonchura striata	0/1.
Fam. Hirundinidae.	
Hirundo striolata	0/1.
Fam. Motacillidae.	
Motacilla cinerea	1/1.
Motacilla alba	0/1.
Anthus hodgsoni	2/4.
Fam. Nectarinidae.	
Aethopyga siparaja	0/1.
Nectarinia jugularis	1/1.
Fam. Dicaeidae.	
Dicaeum chrysorrheum	0/1.
Dicaeum concolor	0/1.
Fam. Pittidae.	
Pitta cyanea	1/1.
Order Piciformes	
Fam. Picidae	
Picus erythropygius	2/2.
Dinopium javanense	2/2.
Chrysocolaptes lucidus	1/1.
Dendrocopos hardwickei	0/1.
Hemicircus canente	1/2.
Sassia ochracea	0/1.
Picumnus innominatus	0/1.
Fam. Capitonidae.	
Megalaima zeylanica	1/1.
Megalaima faiostricta	1/2.
Fam. Cuculidae.	
Cuculus sonneratii (ii)	0/1.
Surniculus lugubris	2/2.
Phoenicophaeus tristis	0/1.
Centropus sinensis	2/2.
Order Psittaciformes	
Fam. Psittacidae.	
Psittacula himalayana	3/3.
Order Coraciiformes.	
Fam. Coraciidae.	
Coracias benghalensis	1/1.
Fam. Meropidae.	
Merops orientalis	5/5.
Fam. Alcedinidae.	
Alcedo atthis	0/2.
Order Trogoniformes.	
Fam. Trogonidae.	
Harpactes oreskios	0/3.
Order Apodiformes.	
Fam. Hemiprocnidae.	
Hemiprocne longipennis	1/1.

Order Strigiformes	
Fam. Strigidae.	
Otus sp.	1/1.
Glaucidium cuculoides	1/1.
Order Falconiformes	
Fam. Accipitridae.	
Accipiter badius	1/1.
Fam. Falconidae.	
Microhierax caerulescens	3/3.
Order Columbiformes	
Fam. Columbidae. **Fam. Columbidae.**	
Treron pompadora	2/2.
Chalcophaps indica	1/1.
Order Galliformes.	
Fam. Phasianidae.	
Pavo muticus	1/1.
Lophura diardi	1/1.
Gallus gallus	11/11.
Francolinus pintadeanus	0/1.
Order Gruiformes.	
Fam. Turnicidae.	
Turnix tanki	2/2.
Fam. Rallidae.	
Amaurornis phoenicurus	0/2.
Mammalia.	
Order Insectivora.	
Fam. Tupaiidae.	
Tupaia glis	7/8.
Order Chiroptera.	
Fam. Rhinolophidae.	
Rhinolophus sp.	0/1.
Order Carnivora	
Fam. Felidae	
Felis bengalensis	2/2.
Order Rodentia.	
Fam. Sciuridae.	
Callosciurus macclellandi	4/5.
Callosciurus finlaysoni (formerly called C. ferrugineus).	3/4
Callosciurus caniceps	2/2
Menetes berdmorei	4/4.
Fam. Muridae	
Rattus rattus	5/5.
Rattus rajah (?)	1/1.
Rattus exulans concolor (?)	2/2.
Mus musculus	2/2
Bandicota sp. (?)	1/1.
Dacnomys milardi (?)	1/1.
Fam. Rhizomyidae.	
Cannomys badius	7/7.
Rhizomys sumatrensis	2/2.

Table 8 (cont)

Order Artiodactyla.

Fam. Cervidae.

Muntiacus muntjak 0/1.

Fam. Tragulidae.

Tragulus javanicus 1/2.

Table 8a

Mosquitoes collected in Nan - Prae, November-December 1961

≠ Aedes (Aedimorphus) alboscutellatus
Aedes (Aedimorphus) mediolineatus
Aedes (Aedimorphus) vexans
Aedes (Banksinella) lineatopennis
≠* Aedes (Finlaya) albolateralis
≠ Aedes Finlaya) harveyi
Aedes (Stegomyia) aegypti
* Aedes (Stegomyia) albopictus
≠ Aedes (Stegomyia) annandalei
Aedes sp. (?)
Anopheles (Anopheles) barbirostris
Anopheles (Anopheles) peditaeniatus
Anopheles (Cellia) aconitus
≠ Anopheles (Cellia) balabacensis
≠ Anopheles (Cellia) filipinae
* Anopheles (Cellia) kochi
≠* Anopheles (Cellia) maculatus
≠* Anopheles (Cellia) minimus
* Anopheles (Cellia) philippinensis
Anopheles (Cellia) tesselatus
* Anopheles (Cellia) vagus
Armigeres (Armigeres) subalbatus
≠ Armigeres (Leccerteramjea) ravus
* Culex (Culex) annulus
Culex (Culex) fuscocephalus
* Culex (Culex) gelidus
Culex (Culex) pipiens quinquefasciatus
* Culex (Culex) pseudouishnui
Culex (Culex) sinensis
Culex (Culex) sitiens
Culex (Culex) tritaeniorhynchus
Culex (Culex) whitmorei
≠ Heizmannia mattinglyi
Malaya genurostris
Mansonia (Mansonioides) uniformis
Topomyia spp.
≠ Uranotaenia bicolor
Uranotaenia campestris

* Collected biting humans
≠ Not represented in Bangkok collections

Table 9

Mosquitoes Preserved for Virus Isolation - August - December, 1961

Species	September		October		November		December		TOTAL	
	Lots	Females	Lots	Females	Lots	Females	Lots	Females	Lots	Females
Aedes aegypti	10	204	9	175	7	92	11	341	37	812
Armigeres subalbatus	4	81	1	19	1	21	--	---	6	121
Culex gelidus	1	35	6	187	8	447	7	251	22	920
Culex pipiens quinquefasciatua	48	4303	68	5303	89	7730	61	4757	266	22093
Culex sitiens	--	--	2	15	--	--	--	--	2	15
Culex tritaeniorhynchus	--	--	5	324	10	482	8	427	23	1233
Mansonia uniformis	--	--	9	285	12	931	7	304	28	1520
TOTALS	63	4623	100	6308	127	9703	94	6080	384	26714

Special Projects

Serum Antistaphyloendotoxin

The testing of sera both from diarrheic patients and from persons without clinical symptoms was continued from 1960.

In order to simplify the procedure, the qualitative slide agar gel diffusion method was applied and only sera showing band-formation with this technic were tested by the Preer method.

During November-December, 312 sera were examined. Since the movement of the bands has to observed for 21 days, only 124 results could be calculated. Six sera were contaminated. The ratio of sera with single, double and multiple band formation was 5:3:4. The highest levels were found in sera from the Korat outbreak of diarrhea and in a few of the 1959 patients with clinical cholera. Only 23 sera contained less that 0.1 unit of antistaphyloendotoxin.

These findings confirm former results which showed that Thais living under poor conditions have significantly higher antistaphylotoxin levels than well-to-do Thais and Westerners.

DEPARTMENT OF VIROLOGY

The Chief of the Department arrived in Bangkok in Oct. After initial orientation, he made contact with the Professor of Microbiology and Head of the Virus Laboratory, School of Public Health. This laboratory is the collaborating institution which houses the facilities of the SEATO Medical Research Laboratory Virus Department. The Thai scientists emphasized that the entire staff is prepared to work full time on SEATO virus research projects.

Facilities.

The Virus Laboratory of the School of Public Health consists of a two-story building (15 x 8 m), divided into 8 rooms of unequal size on each floor. Seven of the 16 rooms are projected for use in raising or keeping mice. Three small rooms (3 x 4 m) are available for dishwashing, cagewashing and preparation of sterile equipment. One medium sized room (8 x 7 m) with 3 isolation cubicels is available for tissue culture preparation, serology, preparation of antigens, mouse neutralization tests and similar procedures. Two isolation cubicels on the first floor may be used for handling infectious materials.

A dumbwaiter connects the two floors for service purposes, since the only access to the top floor is by an outside stairway.

In the beginning of October, the building contained laboratory benches, sinks, an autoclave, filing and storage cabinets, desks and chairs. US Army equipment already installed included an air conditioner, an egg incubator, an upright deep freeze, a refrigerator, 2 hot water heaters and a floor fan. Electric power of 220 V was available. Gas jets connected to a subterranean pipe-line were installed but not in operation. Seven hundred mouse cages and appropriate racks were available to sustain a colony of approximately 3,000 white mice.

During October, 1 well-type deep freeze, 1 incubator, 2 water baths, 1 International SBR centrifuge, 1 refrigerator, 2 balances, and a large amount of glassware and miscellaneous laboratory items of all categories contributed by the US Component of the SEATO Laboratory were moved into the building. By the end of the month most equipment was in place, and arrangements had been made by the School of Public Health which agreed to install and buy fluorescent and U-V lighting, to install cupboards, electrical equipment, the hot water heaters and to provide bottled gas. During the month, construction of a building to house a central gas generator was nearly completed and a construction shack immediately adjacent to the east side of the building was torn down.

The staff assembled by October included 2 Thai doctors with advanced training in virology. Additional personnel included two laboratory physicians trained in Thailand, 2 laboratory technicians and 2 laboratory aids. The US Component of the SEATO Medical Research Laboratory hired one technician and two laboratory aids. Further personnel, to a total of about 35, were planned to be hired subsequently by the US Component.

By agreement with the Rockefeller Foundation, the School of Public Health is to receive in 2 shipments $20,000.00 worth of equipment over a year, including items such as a refrigerated centrifuge, a lypohilizing machine, a walk-in incubator, a cold room, a Servall centrifuge, a water bath, a balance and a moderate amount of laboratory glassware, mouse cages, reagents and other miscellaneous items, which did not arrive to date.

With the stated aims of the Department, it was obvious that the facilities on hand at the School of Public Health are inadequate. The urgent need for more animal space was evident. Animal floor space was grossly short and working space within the laboratory was greatly cramped due to the animal needs. To this end an architectural plan for a temporary hot-weather animal house with 280 sq. m. floor-space was drawn up by the Chief of the Department and submitted to the Acting Rector of the University of Medical Sciences. An architect had completed detailed plans and a cost estimate had been made by a constructor. Immediate construction was ordered by the Acting Rector with an expected date of completion in middle December. It is the opinion of the Unit that some contribution to this construction should be made by the US Component of the SEATO Laboratory in appreciation of the fact that this building will be used to supply animals entirely for the School of Public Health - SEATO virus program. It was suggested that such items as screening, plumbing, racks, animal cages, wash tubs and electrical appliances might be the US contribution. This suggestion was approved.

While time did not allow to develop the full program of the Department, during November and December the following was accomplished :

Tissue Cultures.

During November, 2 lots of monkey kidney cells of approximately 1,500 tubes each were successfully produced.

Resistance of monkey kidney cells (Macaca irus) inoculated with dengue virus for later challenge with polio virus type 1. In two preliminary experiments it was shown that MK cells inoculated with approximately 10,000 suckling mouse IC LD_{50} of dengue viruses, types 1 to 4, resisted challenge with 10,000 and 100 TCD_{50} of polio virus type 1. Resistance was manifested either by complete protection of the cellsheet with no cytopathologic effect (CPE) or by delayed development of CPE compared with cells inoculated with polio virus alone. The results of the experiments are shown in Tables 1 to 3. The chronological difference and the delay in development of resistance to polio challenge in cells inoculated with each of the dengue types suggests that dengue viruses are actually multiplying in MK cells but probably with different propagation rates. Whether the resistance effect is due to the elaboration of interferon, direct viral interference or occupation of attachment sites, is speculative.

In December, further experiments with the dengue-polio virus interference system showed that under the conditions now employed, interference can not be demonstrated unless the inoculum of dengue virus is 2.7 logs (500 mouse IC LD_{50}) or greater. Interference is just as demonstrable if 100 or 10,000 TCD_{50} of polio virus is used; however, if only 10 TCD_{50} is inoculated into dengue infected tubes, interference is detected earlier and the system may be 10-100 times more sensitive (Table 4).

In a single experiment hemadsorption was demonstrated with dengue 2 and 3 viruses 12 days after inoculation of MK cells. Goose cells (0.7%) in adjusting diluent (pH 6.2) were added 30 minutes after cellsheets were covered with borate saline pH 9.0. After 1 hour incubation at 4°C and then 1 hour at 37°C fluid was drained and cells examined for rouleaux formation. Tubes infected with as little as 5 LD_{50} of dengue 2 and 3 viruses were HA positive. Confirmatory studies are in progress.

Serology.

Familiarization with and Standardization of Microtiter Equipment. Extensive simultaneous duplicate HI tests of known positive and negative sera by the

standard pipette-dilution lucite plate technique (Rockefeller Foundation Virus Laboratory procedure) and the loop-dilution microtiter technique using chikungunya and dengue 2 antigens were completed. Typical results presented in Table 5 indicate that the serum titers measured by both techniques are nearly identical; further, overnight incubation of serum-virus mixtures at 4°C is definitely superior to 1 hour incubation at room temperature. The sera tested were paired specimens from children with the diagnosis of Thai hemorrhagic fever. The extremely high HI titers to dengue virus are remarkable.

Comparison of complement fixation test values obtained by the two techniques are in progress.

In December, a large number of HI test were completed using microtiter equipment with sera collected by Thai workers over the past 3 years.

1) Acute and convalescent sera collected from patients with clinical Thai hemorrhagic fever (THF) in 1959, 1960 and 1961 were tested against 8 units of chikungunya, dengue 1 and Japanese B encephalitis (JE) antigens (Table 6). These data show that group B infections form a consistently greater portion of the THF syndrome than does chikungunya virus. JE virus as an antigen is slightly better than dengue 1 for detecting antibody rises; the correlation of rising or elevated titers of both antigens was nearly 100%. Simultaneous diagnostic group A and group B rises occurred in 1 of 12 paired sera in 1959, 2 of 25 in 1960, and in 1 of 32 in 1961.

2) Forthy-three Australian horses arriving in Bangkok on May 14, 1961 were bled on 1 June before being sent the Pasteur Institute Farm in Bang Phra, 80 kilometers southeast of Bangkok. It is of extreme interest that 37 or 60% of serologically negative horses developed HI antibody to a group B antigen (JE) within 6 months of arrival in Thailand (Table 7). The periods of maximum conversions were between June and July as well as between September and December. Eleven horses developed JE antibody without developing dengue 1 antibody suggesting that the infecting agents were either JE or a virus closely related to JE. All sera will be retested by neutralization tests to known group B agents. A large number of horses (14) had group A antibody detected by using the chikungunya antigen when they arrived from Australia; 2 however, acquired a group A infection of Bang Phra.

3) Eleven children ages 4 to 12 resident in the Bang Phra area (Sriracha) were bled in early December 1961 and tested against the same antigens as above (Table 8). The data show that humans as well as horses not only have significantly higher titers against JE virus but more frequently have JE antibody than dengue 1 antibody. This is in contrast with the test results of Bangkok children in whom JE antibody is detected no more frequently than there is antibody against dengue (Table 6). The incidence of group A antibody is perhaps a little less in this age group than would be expected in Bangkok.

Mosquito Processing.

During 3 weeks of November, 75 pools of mosquitoes captured and identified by the Department of Entomology during the months of September and October were inoculated into suckling mice. Most mosquito suspensions were heavily contaminated with bacteria despite 1 hour incubation with 500 units/ml penicillin and 500/micrograms/ml streptomycin. This contamination presumably accounts for late deaths observed in some mice which were not reproducible on later passage. It is now planned to add chloromycetin to the suspensions and routinely centrifuge them at 20,000 G for 1 hour in the cold.

During the month of December, 34 pools of mosquitoes were inoculated into suckling mice without recovery of virus. In addition, approximately 40 pools were given to the Chulalongkorn Medical School Virus Laboratory for processing.

At the end of the month, that laboratory reported one probable isolate recovered in blind passage from a pool of Aedes aegypti captured in October. This will be reported later.

Originally it has not been the practice of this virus Department to blind passage routinely. Instead, mice have been observed closely for growth or maturation abnormalities, or signs of sickness, then passaged. In addition, one-half of surviving litters have been challenged with 100 LD_{50} of chikungunya virus and one-half with dengue 1 virus. Survival of several individuals from 4 different groups (3 inoculated with A. aegypti, 1 inoculated with C. fatigans) inoculated with chikungunya virus will be followed up with repeat isolation attempts from the original pools. No mice inoculated with dengue 1 survived. In view of the demonstrated efficacy of blind passage by the Chulalongkorn Virus Laboratory and others it is planned to incorporate this isolation method into our routine.

Field Studies.

1) Hemorrhagic Fever. Considerable progress was made in the development of plans for field studies of THF in Bangkok. Briefly, an integrated community-wide study of THF will be started during the month of January designed to run for a period of 1 year. An attempt will be made to measure the dissemination of the arbor virus agents associated with the THF syndrome in humans, arthropods and in urban dwelling mammalian and avian species. To do this, linear serologic studies will be made of native and foreign residents of Bangkok. With the assistance of other virus laboratories in Bangkok, patients with the THF syndrome and with other febrile illnesses will be studied etiologically. Several areas, chosen randomly but representing different urban habitats in Bangkok, will be studied as ecologic units. Five such areas of 300 to 400 households each were selected and have been visited. Large scale maps of the areas have been obtained. As soon as bleeding teams and an animal collection team can be assembled, forces will be joined with the Entomology Department and collection of materials will begin. The size of each study unit has been planned to be large enough so that a 10% monthly sample of the population will yield a serologic pattern which may validly be compared with later or earlier samples from the same population. Members of the WHO BGG Evaluation Team, the Central Statistical Office of the National Economic Development Board, and Municipal Police Department assisted at this stage of planning.

2) Bang Phra Study. As noted in the section on cooperative efforts, an agreement was reached with the Director of the Pasteur Institute (Queen Saovabha - Red Cross) to initiate a linear study of arbor viruses in the area of their Bang Phra horse farm. This farm is used to provide antisnakevenom for treatment centers throughout Thailand. Approximately 140 horses are pastured and stabled there. In 1958, an undiagnosed disease produced nearly 40 equine fatalities in imported stock. Situated at the horse farm is a large 2 story laboratory building and a mouse colony of approximately 4,000 white mice. The Director of the horse farm has had 2 years of laboratory training in arbor virus techniques. Plans have been made to collect mosquitoes from animal-baited and light traps. Mosquitoes will be initially processed at Bang Phra and suspected isolates sent to this Department for further workup.

3) Chiengmai Arbor Virus Study. Facilities of the Chiengmai Vector Control Laboratory were inspected. The laboratory includes rather complete virus facilities including a Revco, a refrigerated centrifuge, assorted glassware and incubators. This laboratory would serve admirably as a field collecting station in the event of an outbreak of virus disease or for repository of samples for the arbor virus field collection team until such materials can be shipped to Bangkok.

4) Animal Colony. During November, all mouse cages were converted for use with water bottles. A new bottle holder is attached to the front of each

cage where it will be readily visible and accessible for refilling. Food hoppers for nearly one-half of the cages were completed and bids accepted for baking a locally compounded dry mouse feed until animal food requisitioned from WRAIR arrives.

Construction of outdoor animal quarters by the School of Tropical Medicine was progressing on schedule. At the present rate of construction, it is anticipated that floor space will be available sooner than the cages ad racks are delivered.

At the end of December, the mouse colony had 434 male and 1,689 female breeders, and 1,448 feeders. Mouse production (17 litters per day average) bell below the level for November due to a number of disruptive factors: reconstruction of the downstairs animals rooms, change of entire breeding colony to air conditioning, change from wet to dry feed and limitation of breeding cages because of cage alterations.

As a start of breeding colonies, 110 hamsters, 6 rats, 6 guinea pigs and 6 rabbits were obtained from USAMRU Malaya.

Familiarization Trip to Singapore and Kuala Lumpur.

A familiarization trip of 2 days to Kuala Lumpur and 4 days to Singapore was made. Tissue culture materials, animals and considerable miscellaneous useful information were obtained at USAMRU. Time was spent in Singapore getting acquainted with the arbor virus project at the Medical College where Japanese B encephalitis and dengue viruses on Singapore Island are being studied.

Table 1

Passage Histories and Strains of Dengue Viruses Used in Monkey Kidney Cell Interference Studies.

Virus	Strain	Mouse Passage	Titer
Dengue 1	Hawaii (RFVL)	66	10-6
Dengue 2	Tr. 1751 (RFVL)	64	10-7
Dengue 3	H 87 (Hammon)	26	10-6
Dengue 4	H 241 (Hammon)	29	10-7

Table 2

Cytopathogenicity in MK Cells Infected with 30,000 TCD_{50} of Polio Virus Type 1

(4 days following inoculation of Dengue 3 and 4 viruses)

Initial Virus Inoculated	Infecting Dose	CPE Days after Challenge with Polio Type 1.					
		1	2	3	4	5	6
Dengue 3	10^{-5} IC LD_{50}	0 0 0	0 0 0	0 0 0	0 ++ +++	0 ++++ ++++	+
Dengue 4	10^{-5} IC LD_{50}	0 0 0	0 0 0	0 0 0	+ ++++ +++	++++ ++++	
Polio 1 Control	3 x 10^{-4} TCD_{50}	0 0 0	++++ ++++ ++++				

Table 3

Challenge of MK Cells with 100 TCD_{50} Polio Virus Type 1 at Successive Intervals Following Inoculation of Dengue Viruses

Initial Virus Inoculated	Infecting Dose	CPE in MK Cells following Polio Virus Challenge Day After Inoculation with Dengue Virus					
		2	4	6	8	11	13
Dengue 1	10^{-5} IC LD_{50}	#	#	#	0	0	0
		#	#	#	#	0	0
		#	#	#	#	0	0
Dengue 2	10^{-5}	#	#	#	cont	0	0
		#	#	#	cont	0	0
		#	#	#	cont	# #	0 0
Dengue 3	10^{-5}	#	#	0	0	0	0
		#	#	0	0	0	0
		#	#	0	0	0	0
Dengue 4	10^{-5}	#	0	0	0	0	0
		#	0	0	0	0	0
		#	0	0	0	0	0
Polio 1	10^{-5}	#	#	#	#	#	#
		#	#	#	#	#	#
		#	#	#	#	#	#

\# = CPE 48 hours after challenge with polio 1

0 = No CPE observed in 48 hours or longer following challenge with Polio 1

Table 4

Dengue-Polio Virus Interference in Macaca Irus Renal Epithetial Cells

Virus	Infecting Dose	Day After Dengue Inoculation Interference First Noted		
		Polio Challenge		
		10 TCD_{50}	100 TCD_{50}	10,000 TCD_{50}
Dengue 1	3.5	0	0	0
	1.5	0	0	0
Dengue 2	4.7	8 d	-	10 d
	2.7	10 d	0	0
	0.7	0	0	0
Dengue 3	4.7	8 d	8 d	12 d
	2.7	8 d	10 d	12 d
	0.7	0		
Dengue 4	6.1	8 d	10 d	10 d
	4.1	8 d	0	0
	2.1	0	0	0
	0.1	0	0	0

Table 5

Comparative HI Titers (8 units)
Rockefeller Plate VS Microtiter Method

Antigen 8 units / Serum No.	Chikungunya			Dengue (Hawaii)		
	RF late	Microtiter Plate		RF Plate	Microtiter Plate	
	16 hr at 4 C°	16 hr at 4 C°	1 hr at 32 C°	16 hr at 4 C°	16 hr at 4 C°	1 hr at 32 C°
1	0	0	0	12	12	12
2	4	4	2	12	12	12
3	0	0	0	12	11	8
4	0	0	0	12	12	11
5	5	5	3	6	6	4
6	7	7	5	6	7	4
7	0	0	0	7	8	4
8	0	0	0	7	8	5
9	0	0	0	8	8	5
10	0	0	0	7	7	5
11	8	7	6	0	0	0
12	8	8	6	0	0	0
13	0	0	0	7	8	5
14	0	0	0	7	7	5
15	0	0	0	0	0	0
16	0	0	0	0	0	0
17	7	8	5	6	6	3
18	8	8	6	6	7	4
19	7	7	5	11	11	8
20	7	7	5	11	11	8

0 = 1 : 20
1 = 1 : 20
2 = 1 : 40
3 = 1 : 80
4 = 1 : 160
5 = 1 : 320
6 = 1 : 640
7 = 1 : 1,280
8 = 1 : 2,560
9 = 1 : 5,120
10 = 1 : 10,240
11 = 1 : 20,480
12 = 1 : 40,960

Table 6

Serologic Studies of Thai Children with Clinical Diagnosis of Hemorrhagic Fever, Children's Hospital, 1959-1961
(HI Tests)

Year	Number Paired Sera	4-fold Titer Rise			High Fixed Titer 1 : 160			Low Titer or Negative		
		Chik	D 1	JE	Chik	D 1	JE	Chik	D 1	JE
1959	12	1	5	6	0	3	3	11	4	3
1960	25	4	9	10	9	15	14	12	1	1
1961	32	3	8	10	7	16	15	22	8	7

Chik = Chikungunya
D = Dengue
JE = Japanese B Encephalitis

Table 7

Serologic Conversions in 43 Adult Australian Horses Imported into Thailand in May 1961.

Bang Phra Horse Farm June-December 1961.

Date Bleeding	4-fold HI Titer Rise					
	Chikungunya		Dengue 1		Japanese B Encephalitis	
	Pos/Neg	Cum. %	Pos/Neg	Cum. %	Pos/Neg	Cum. %
Antibody on Arrival 1 June	14/29		6/37		6/37	
23 July	1/28	3 %	8/29	22 %	10/27	27 %
7 Sept	1/27	7 %	0	22 %	1/26	30 %
28 Dec	0	7 %	2/27	27 %	11/15	60 %

Table 8

Serologic Study of Normal Children, Sriracha (Bang Phra area)

No.	Age	Reciprocal HI Titer (vs 8 Units)		
		Chikungunya	Dengue 1	Japanese B Encephalitis
1	4	20	20	40
2	5	20	20	20
3	5	20	40	20
4	6	20	40	40
5	7	20	20	20
6	8	320	80	160
7	9	20	20	40
8	10	320	320	640
9	11	20	40	160
10	12	20	20	20
11	12	20	20	80

Table 9

Mosquito Pools Processed, November - December

Mosquito Species	No. Lots	Total Mosquitoes
C. pipiens quinquefasciatus	83	908
C. tritaeniorhynchus	3	334
C. gelidus	4	208
A. subalbatus	3	63
Ae. aegypti	9	306
M. uniformis	7	554
Sum	109	2,363