In 1983 the number of health areas with an API of over 3 per 1000 population has increased from 21(1982) to 63 of which 40 health areas have an API of over 10 and accounts for over 50% of the total population netting in 95% of total positives. What is disquieting is that 28 health areas in the epidemic zone show API-values similar to those in the hyperendemic zone even though the majority of these health areas had an ABER of under 8% whereas in the endemic zone the ABER generally exceeded 15%. This situation may be indicative of a high level of transmission which prevailed in the epedemic zone in the drought months. In the so called non-malarious zone there has been a 10 fold increase of cases in 1983, though there has been no change in the number of blood smears examined in 1982 and 1983. Significant numbers of cases have been recorded in Health areas Paddukka, Kandy Municipality and Nawalapitiya which is suggestive of local transmission in the lower reaches of the Kelani Ganga and the middle reaches of the Mahaweli consequent to pooling during the dry months. Had blood smears collections in more of the wet zone health areas particularly bordering the Intermediate zone been done it is likely many cases would have been picked up.

There has been no change in the proportion of P.falciparum through the number of P.falciparum infection in 1983 have increased three fold almost to the same extent as P.vivax. The shift of P.falciparum infections in recent years from the Eastern Foothills (Bibile, Moneragala, Badulla) to the Northern Dry Belt (Anuradhapura, Vavuniya, Trincomalee, Puttalam districts) has been maintained with nearly 70% of infections of this species in this epidemiological zone as against 8% in the Eastern foothills which in 1982 recorded nearly 15% of P.falciparum infections. In 1983 there have been deep inroads of this species from the Northern Dry Belt to neighbouring areas in the Intermediate zone particularly Chilaw, Kurunegala and Matale districts.

In 1983 the ABER was less than in 1982 which may be atttributed to a shortage of glass slides in the late months of 1983.

-(contd..)-

However the ABER has exceeded 15% in all health areas in the endemic zone and ranged between 5-10% in the health areas in the epidemic zone. In the Jaffna Peninsula the ABER has been under 5%. In the first half of 1984 there has been an acute shortage of glass slides which is reflected in the blood smear examinations which the team encountered in the areas visited.

The API and SPR in 1983 were 8.2% and 6.[illegible]% respectively which is more than 3 times that in 1982, clearly indicating that the malaria situation has regressed during the year largely owing to abnormal rainfall patterns - prolonged drought in the epidemic zone with failure of South West monsoon end excessive rainfall in the endemic zone during the North East monsoon which conditions have been favourable for continuous transmission. The high precipitation has continued into 1984 and extended beyond the normal North East monsoon month[illegible] endemic zone maintaining transmission. This is reflected in the case incidence in the first 4 months of 1984 being 2.5 fold higher than in 1983 even though blood filming was severely hampered by an acute shortage of glass slides. This is further brought not in a comparison of SPRs for the first 4 months of 1983 and 1984 which were 6.25% and 20.4% respectively allowing for a higher selectivity in blood smear collections in 1984.

2.1. Functioning of Case Detection and treatment system

As in 1982, APCD remains the main source of blood smears collection and case detection in 1983 and 1984 (January-April) as shown below :

| Source : | Year : | No.of blood smears examined: | No. positives: | SPR : |
|---|---|---|---|---|
| APCD | 1983 | 787,061(74.5%) | 108,824(85.5%) | 13.8 |
| | 1984 | 204,993(75.0%) | 45,333(84.9%) | 22.0 |
| ACD | 1983 | 82,454( 7.8%) | 5,840( 4.6%) | 7.1 |
| | 1984 | [illegible] | [illegible] | 17.0 |
| PCD | 1983 | 43,[illegible] | 5,[illegible]57( 2.9%) | 8.4 |
| | 1984 | 13,327( 5.0%) | 1,[illegible]5( 2.9%) | 11 |
| Others | 1983 | 149,334(13.3%) | 8,943( 7.0%) | 6.3 |
| | 1984 | [illegible]2(11.[illegible]) | [illegible]( 7.[illegible]) | 13 |
| [illegible] | 1983 | [illegible] | [illegible] | [illegible] |
| | 1984 | [illegible] | [illegible]20 | |

In 1983, 74.5% of blood smears was the result of APCD ; in 1984 it was 76%. These figures were slightly less than the figure in 1982 which was 78.2%. With regard to total positves detected by APCD, the figures for 1984, 1983 and 1982 were 84.9%, 85.5% and 85.3% respectively. SPR in 1983 and 1984 is less useful as an indicator, since there was considerable shortage of blood slides throughout the island. It tends to shoot up as blood smear collection is becoming more selective. Even in these circumstances it has a higher indicator value than the API.

Participation of Voluntary Treatment Centres in blood filming was negligeble in the areas visited except in Moneragala Region where 78% blood smears were collected in 1983. The activity is also in progress in Matale Region from 1984. There is much variation in the number of functioning VTCs in the different regions. These appear to be concentrated and better organized in the Mahaweli Project Area. There seems to be a lack of information regarding these VTC at Regional and sub-regional offices.

- In 1983, P.vivax accounted for 96.5% of the infection whereas in 1984 it was 97%. It was a very slight increase compared to 1982, i.e. 95.9%.

- Most of the P.falciparum (P.f.) cases had been investigated whereas only a small proportion of P.vivax(P.v.) cases in some areas were so done. It will be of prime importance to know whether most of P.v. cases are new cases or just relapses, since this will determine further measures to be taken in the near future. This is further supported by the fact that most of the malaria cases do not complete the full course treatment.

- Health Division wise distribution of cases in 1983 and 1984 (up to May) is depicted below :

| | Health Division : | Year : | No.of blood smears Exd.: | No.positived : | SPR : | P.v.: | P.f.: |
|---|---|---|---|---|---|---|---|
| 1. | Jaffna | 1983 | 58,704 | 2,352 | 4.0 | 2,284 | 68 |
| | | 1984 | 14,461 | 941 | 6.5 | 821 | 120 |
| 2. | Vavuniya | 1983 | 54,863 | 10,696 | 19.5 | 10,225 | 471 |
| | | 1984 | 14,710 | 3,[illegible] | 21.[illegible] | 3,304 | 252 |

| | Health Division: | Year: | No.of blood smears Exd.: | No.positives: | SPR : | P.v.: | P.f. : |
|---|---|---|---|---|---|---|---|
| 3. | Anuradhapura | 1983 | 121,557 | 21,579 | 17.8 | 20,193 | 1,386 |
| | | 1984 | 29,604 | 8,926 | 30.15 | 8,609 | 317 |
| 4. | Puttalam | 1983 | 64,237 | 7,341 | 11.4 | 6,754 | 587 |
| | | 1984 | 16,376 | 3,588 | 21.9 | 3,407 | 181 |
| - | Kurunegala | 1983 | 115,139 | 18,160 | 15.8 | 17,664 | 496 |
| | | 1984 | 27,241 | 10,478 | 38.5 | 10,280 | 198 |
| 6. | Matale | 1983 | 97,362 | 9,145 | 9.4 | 8,521 | 624 |
| | | 1984 | 28,643 | 5,439 | 18.9 | 5,310 | 129 |
| 7. | Batticaloa | 1983 | 56,141 | 6,511 | 11.6 | 6,452 | 55 |
| | | 1984 | 18,265 | 3,043 | 16.7 | 3,041 | 2 |
| 8. | Badulla | 1983 | 21,301 | 1,[illegible] | 8.7 | 1,788 | 66 |
| | | 1984 | 10,492 | 1,052 | 10.0 | 1,024 | 28 |
| 9. | Matara | 1983 | 84,090 | 6,915 | 8.2 | 6,897 | 18 |
| | | 1984 | 30,934 | 3,592 | 11.6 | 3,553 | 39 |
| 10. | Galle | 1983 | 2,027 | 144 | 7.1 | 143 | 1 |
| | | 1984 | 556 | 58 | 10.4 | 58 | 0 |
| 11. | Ratnapura | 1983 | 65,088 | 4,163 | 6.4 | 4,117 | 46 |
| | | 1984 | 23,619 | 1,631 | 6.9 | 1,626 | 5 |
| 12. | Kegalle | 1983 | 52,096 | 9,248 | 17.8 | 9,207 | 41 |
| | | 1984 | 11,946 | 3,679 | 30.8 | 3,667 | 3 |
| 13. | Kandy | 1983 | 56,338 | 7,088 | 12.6 | 6,944 | 144 |
| | | 1984 | 14,576 | 2,478 | 17.0 | 2,439 | 39 |
| 14. | Colombo | 1983 | 26,130 | 727 | 2.8 | 721 | 6 |
| | | 1984 | 9,920 | 198 | 1.9 | 186 | 12 |
| 15. | Kalutara | 1983 | 4,964 | 205 | 4.1 | 204 | 1 |
| | | 1984 | 1,358 | 125 | 9.2 | 121 | 4 |
| 16. | Amparai | 1983 | 52,157 | 3,293 | 6.3 | 3,283 | 10 |
| | | 1984 | 20,125 | 4,425 | 21.9 | 4,423 | 2 |
| 17. | Gampaha | 1983 | 35,710 | 8,394 | 25.2 | 8,316 | 78 |
| | | 1984 | 9,976 | 3,303 | 32.1 | 3,184 | 19 |
| 18. | Nuwara Eliya | 1983 | 7,684 | [illegible] | 12.0 | 887 | 34 |
| | | 1984 | 2,310 | 298 | 12.9 | 286 | 12 |
| 19. | Moneragala | 1983 | 79,988 | 7,928 | 9.9 | 7,564 | 364 |
| | | 1984 | 30,438 | 3,506 | 11.5 | 3,402 | 10[illegible] |

2.1.1. Indicator Institutions

From 31 indicator institutions collecting blood smears in 1983, 11,242 out of 107,796 were positives (SPR 10.4%) of which 10,892 P.v., 326 P.f., and 44 mixed infections. Proportion of P.v., (96.7%) detected was almost equal to all other institutions in case finding.

In 1984 (up to April) the breakdown by fever and non fever cases from 13 indicator institutions is available as follows. 4.519 blood films were collected from the non fever group 42 were positive (9.2%) for P.vivax. No. P.f. was detected. From the fever group 2,795 were positive (18.1%) out of 15,460 blood films collected, of which 2,701 (96.6%) were P.v., 86 were P.f. (3%) and 8 mixed infection (0.4%).

It was also observed from the available records that the indicator institutions in the areas visited were functioning more as APCD institutions as blood smears from non fever cases were minimal or such cases not blood filmed at all. In fact, many fever cases were being missed for blood filming. These indicator institutions need to be fully revived to provide the epidemiological information which was required of them when they were established at the time of the Intensified Control Programme.

It might be worthwhile to have a study on the carrier status of malaria among the adults, since this is the segment of population which has higher mobility, thus having better chance for spreading the disease.

2.1.2. Treatment

There has been no change in treatment regimens which consist of a combination of Chloroquine/Amodiaquine and Primaquine in all forms of treatment. Radical treatment has been given to all positive cases and fever cases suspected of malaria.

-(Contd.....)-

Pyrimethamine is not used in presumptive treatment. Mass Drug Administration has been carried out for one or two cycles but in some villages and project sites it has extended to more cycles depending on coverage. Prophylactic treatment has been used largely in project sites. On the distribution of Chloroquine and Primaquine in 1983 by the State Medical Stores and AMC more than 1.5 million population has had anti-malarial treatment.

## 2.2. Laboratory Performance

Blood smears collected through various sources were examined at Regional Laboratories and at Central Laboratory at Colombo. There was a shortage of 49 microscopist against the 233 sanctioned in 1983, though 27 additional microscopists were added to the cadre. The number of blood smears examined in 1983 was slightly less i.e. 1.05 million compared to 1.13 million in 1982, although the number of positives in 1983 was almost four fold. This is due to the shortage of blood slides mentioned in point 2.1.

In 7 existing regional laboratories in 1983 and 1984 (Jan - May), cross checking done at the central laboratory in Colombo reveals (Table 2 and Table 3 ) that the error rate for both positive to negative and negative to positive are very low (average less than 1%).

The percentage of positive blood films received and re-examined in 1983 and 1984 are 12.5% and 5.9% respectively whereas for the negative blood films the figures are 30.9% and 46.7%.

The error in species recognition is significantly low for 1983 (0.01%) and 1984 (0.003%). The error rate of positive and negative slides is confounded by the parasite prevalence among slides examined. A more unbiased basis for comparing the performance of laboratories could be obtained by using

Table 2

## LABORATORY PERFORMANCE IN 1983

| Name of Region | Total examined | No. of B/F received by cross checking | Total no. of +ves | No. of +ves exd | +ve to -ve | No. of -ves exd | -ve to +ve | Specimen difference |
|---|---|---|---|---|---|---|---|---|
| Colombo | 326126 | 83984 | 38282 | 3056 | Nil | 26709 | 137 (0.5%) | 03 |
| Kurunegala | 124842 | 86491 | 18987 | 1807 | Nil | 19245 | 89 (0.5%) | - |
| Batticaloa | 104474 | 83861 | 9379 | 2991 | Nil | 18205 | 117 (0.6%) | 02 |
| Anuradhapura | 109518 | 86877 | 15397 | 1447 | Nil | 23860 | 342 (1.4%) | 11 |
| Ratnapura | 87950 | 84101 | 6937 | 1076 | Nil | 19670 | 68 (0.3%) | 01 |
| Galle | 122783 | 81085 | 13906 | 1221 | Nil | 17710 | 43 (0.2%) | 01 |
| Kandy | 116709 | 81471 | 10891 | 1880 | Nil | 23215 | 118 (0.5%) | - |
| Matale | 106135 | 83981 | 9571 | 1885 | Nil | 21385 | 128 (0.6%) | 01 |
| Total | 1098539 | 671851 (61.2%) | 123350 (18.4%) | 15363 (12.5%) | Nil | 169995 (30.9%) | 1042 (0.6%) | 19 |

# TABLE - 3

## LABORATORY PERFORMANCE IN 1984 (JANUARY-MAY)

| Name of Region | Total Examined : | No.of B/F received by Cross-checking: | Total No.of Positives: | No.of positives Exd.: | +ve to Neg.: | No.of -ves Exd.: | -ve to +ve : | Specimen difference: |
|---|---|---|---|---|---|---|---|---|
| Colombo | 98364 | 46001 | 17971 | 698 | - | 9775 | 92 (0.9%) | 01 |
| Kurunegala | 28252 | 25007 | 10836 | 513 | - | 6840 | 40 (0.6%) | - |
| Mattigalla | 41490 | 16278 | 8439 | 680 | - | 10035 | 88 (0.9%) | 02 |
| Anuradhapura | 35871 | 27511 | 10578 | 677 | - | 9460 | 100 (1.0%) | - |
| Hambantota | 31[illegible]3 | 28356 | 3264 | 193 | - | 8385 | 25 (0.3%) | - |
| Jaffna | 31714 | 26367 | 5090 | 293 | 01 (0.3%) | 7965 | 44 (0.6%) | - |
| Badulla | 63273 | 23888 | 7220 | 609 | - | 9700 | 61 (0.[illegible]%) | - |
| Matale | 29525 | 27689 | 5567 | 467 | - | 8845 | 59 (0.7%) | - |
| Total | 360422 | 221097 (61.3%) | 68965 (31.2%) | 4130 (5.9%) | 01 (0.02%) | 71005 (46.7%) | 509 (0.7%) | 03 (0.003%) |

sensitivity and specificity indicators instead. Sensitivity and specificity are measures expressing the degree by which a laboratory test excludes false negatives from true cases and false positives from non-cases, respectively. In Anuradhapura for instance, the team was able to determine a specificity of 100% (1981/82/83) and a sensitivity of 95.3% (1981), 9.4% (1982) and 94.5% (1983). Considering these excellent results and to a certain extent to relieve the central laboratory of recycling of slides, it is worth while to consider that only a proportion of slides should be sent by the R.M.O. Suggest 10% of the positives, which should include all P.f. cases, and 25% of the negatives.

## 2.3. Collaboration of Health Services

Most of the Family Health Workers (FHW) have now been trained in blood filming and administration of antimalarial drugs. However they could not be utilized owing to a shortage of glass slides and drugs. In Medical Institutions, not activated, the blood smears examination were about 4% of total examinations. Even in activated institutions blood filming in the absence of the APCD agents is minimal or not done.

The withholding of primaquine therapy by some Medical Officers particularly in the MCP owing to a concern about possible side effects in patients with G 6 P D deficiency is an issue which needs to be resolved as a matter of urgency. There is much scope in technical and operational areas for coordination to be strengthened between AMC and the General Health Services.

## 2.4. G 6 PD deficiency

The AMC has had to contend over the years with the hospital authorities especially in Anuradhapura Health Division regarding the administration of Primaquine because of the occurrence of Intra Vascular Haemolysis (IVH) [illegible]

this drug. This has led to it being referred to the Sri Lanka Medical Association and the withdrawal of the drug from paramedical and voluntary workers in the MCP for a trial period of 6 months when the situation would be reviewed. Limited studies on G 6 PD deficiency have been carried out by the AMC in 1980, 1981 and 1982 especially in Anuradhapura District and this defect was detected in 8.2% of the population tested (712) whereas in a survey in Bibile only 3% of the population tested (139) showed this defect.

There is an increasing incidence of P.falciparum in the Health Areas Anuradhapura, Kekirawa, Kahatagasdigiliya, Hinguraksgoda, Polonnaruwa in North Central Province and withdrawal of Primaquine from paramedical personnel in the treatment of P.falciparum would be prejuducial to interruption of transmission of P.falciparum where a drastic reduction of P.falciparum is one of the objectives of the Programme. During the trial period cases of IVH should be throughly investigated by the hospital authorities and records maintained which could be reviewed by the review committee.

It would be in the interest of the AMC to undertake surveys of G 6 PD deficiency throughout the country and more extensively in the North Central Province where the problem appears to be somewhat overstated by some physicians. With the information from these surveys the AMC would be in a position to defend itself in the use of primaquine for radical cure of malarial infections. The availability of a simple, rapid field test enables the AMC to carry out these surveys without too much strain on its resources.

2.5. Research and Monitoring Activities of P.falciparum sensitivity to 4 aminoquinolines (chloroquine)

Only a limited number of tests had been carried out up to 1982 under the WHO Regional Collaborative Study on P.falciparum sensitivity to 4 aminoquinolines since its commencement in 1970. These limited tests seem that there is no

evidence of lowered sensitivity of P.falciparum to chloroquine. In 1983, 16 tests(in vitro) were carried out in Puttalam, Nochchiyagama, (Anuradhapura District) and Bingiriya (Kurunegala) where P.falciparum was found to be highly sensitive to chloroquine. This activity has gathered momentum in 1984 where 31 successful in vitro(micro)and 6 (in vivo)tests have been carried out in Puttalam (January, February (24), Bingiriya (2) January 1984), Anuradhapura (5) (April) and Moneragla (May). Tests carried out in 1984 have confirmed the sensitivity of P.falciparum to chloroquine. However in discussions with the District Medical Officer Puttalam he referred to a few cases which had not responded to chloroquine and which required in addition antibiotics for fever to subside and for parasite clearance. As the first indication of diminished sensitivity to chloroquine would be from the physicians the AMC should respond to such notifications by instituting prompt investigations. This activity needs to be extended to all P.falciparum areas to determine the sensitivity levels of P.falciparum and to monitor these levels at regular intervals (annually). Sri Lanka is fortunate that the local P.falciparum strains are sensitive to 4 aminoquinolines but close monitoring of the sensitive levels is needed particularly as resistant P.falciparum infections have been encountered in some South Indian States which poses a serious threat to its introduction to Sri Lanka.

## 3. Entomological Aspects

In preparing this account on the entomological programme in 1983/84 the team was enormously helped by being provided with numerous files and documents. The following three comprehensive documents were particularly useful:

- Report on "Meeting of the Entomological Assistants of the Anti Malaria Campaign" held on 24.01.83 - 25.01.83 at A.M.C. Headquarters and Entomological Programme for 1983.
- Entomological programme requirements, available facilities and work plan for 84/85.
- Results of entomological work, 1983. (comprehensive quantitative tables, unpublished document).

Because of the availability of these papers there is no need to go into great detail on staffing, field or research activities and quantitative data. Instead, an outline of outstanding developments in the past year will be treated.

### 3.1. Operational monitoring and epidemiological participation

Entomology continues to play a vital role in the execution of the Anti Malaria Campaign, despite the substantial criticism levelled at the section. Most of this criticism stems from a misunderstanding of the generally acknowledged importance of entomology in vector-borne diseases control. The contribution of entomology to the A.M.C. in 1983/84 was hampered by staff shortages (another two E.A. left the country on overseas employment), lack of administrative support and continuing adverse publicity.

As far as accomodation is concerned it is extremely disturbing to find that no progress has been made in the past year in the completion of laboratory facilities in Colombo. It is particularly disturbing to note that the temporary accomodation provided earlier by the Microbiology Laboratory has had

to be vacated. At the regional level it was observed that the need for adequate office and store space for entomological teams was not always recognized and not always provided for.

The present staffing allows seven teams (five stationed in the field, two operating from Colombo) to operate in the operational monitoring and epidemiological participation. In addition, there are three teams, headed by post-graduate research assistants recruited on WHO/TDR - supported grants.

As the methods employed are much the same in operational monitoring, epidemiological participation and spot-checks, it is intended to discuss these aspects simultaneously in the following. Research activities will be addressed in paragraph 3.2.

Standard procedures employed and results acquired in 1983 were as follows.

3.1.1. Pyrethrum spray catches :

These show that in 50% of houses sampled which were either unsprayed or overdue catches yielded 66% of all An.culicifacies. The remainder came from houses sprayed within the previous 1-90 days. This suggests that the quality of spraying leaves much to be desired. As expected, An.subpictus seemed to be little affected by the spraying, whereas other anopheline species (largely exophilic) were found in very small numbers.

3.1.2. Hand collections (indoor resting) :

Data collected all confirm the conclusion reached in section 3.1.1.

3.1.3. Window (exit) trap collections :

The occurrence of numerous gravid specimens in these catches suggests significant survival of An culicifacies and An.subpictus. The 24 hours delayed mortality figures (probably considerably less than 50%) confirm this continued survival.

3.1.4. Human bait collections :

These collections, both indoors and outdoors, showed that An.culicifacies and An.subpictus were the two predominant species. The finding of An.annularis, An.vagus, An.varuna, An.nigerrimus, An.pallidus and An.barbirostris in outdoor catches lends some support to the hypothesis of possible extradomiciliary transmission by species other than An.culicifacies.

3.1.5. Insecticide-susceptibility tests :

Table 4 shows anopheline species which have survived discriminating dosages of organochlorines, organophosphates and carbamates. It can be seen that multiple resistance is already common in a number of these species. For the first time, malathion-resistance in the vector, An.culicifacies, has become evident in six health areas in 1983/84. The map in figure 1 shows where surviving An.culicifacies have been observed after 60 minutes' exposure to 5% malathion. A disturbing feature is the already relatively widespread occurrence of malathion resistance in the island. [illegible] . There is no evidence as yet of resistance to any other organophosphate compound or carbamate. The only other insecticide to which An.culicifacies remains resistant is DDT. As in other years, there have been no survivors at 0.4% dieldrin for one hour.

3.1.6. Bio-assay tests :

The few tests done show a much lower mortality than would be expected if the insecticide had been adequately applied. Persistence of malathion on non-absorbent materials continues to be superior to that on mud walls or bricks.

3.1.7. Precipitin tests :

In spite of the finding of several species biting man out of doors in biting catches, none of the bloodmeals tested from resting specimens were found positive for human blood (An.culicifacies was not tested).

Table 4

SUMMARY OF RESISTANCE STATUS OF THIRTEEN SPECIES OF ANOPHELES TESTED UP TO JUNE, 1984

| Species \ Insecticide | WHO-recommended discriminating doses | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | malathion | fenitrothion | chlorphoxim | propoxur | bendiocarb | DDT | dieldrin | permethrin | deltamethrin |
| An. culicifacies | + | - | - | - | - | + | - | + | - |
| An. subpictus | + | + | + | + | 0 | + | + | 0 | - |
| An. aconitus | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| An. annularis | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| An. barbirostris | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| An. jamesi | + | 0 | - | 0 | 0 | 0 | 0 | 0 | 0 |
| An. karwari | - | - | - | 0 | 0 | 0 | 0 | 0 | 0 |
| An. maculatus | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| An. nigerrimus | + | + | + | + | 0 | + | + | 0 | 0 |
| An. pallidus | - | 0 | - | - | 0 | + | + | 0 | 0 |
| An. tessellatus | - | 0 | - | - | 0 | 0 | + | 0 | 0 |
| An. vagus | - | - | 0 | 0 | 0 | + | 0 | 0 | 0 |
| An. varuna | + | - | 0 | - | 0 | + | - | 0 | 0 |

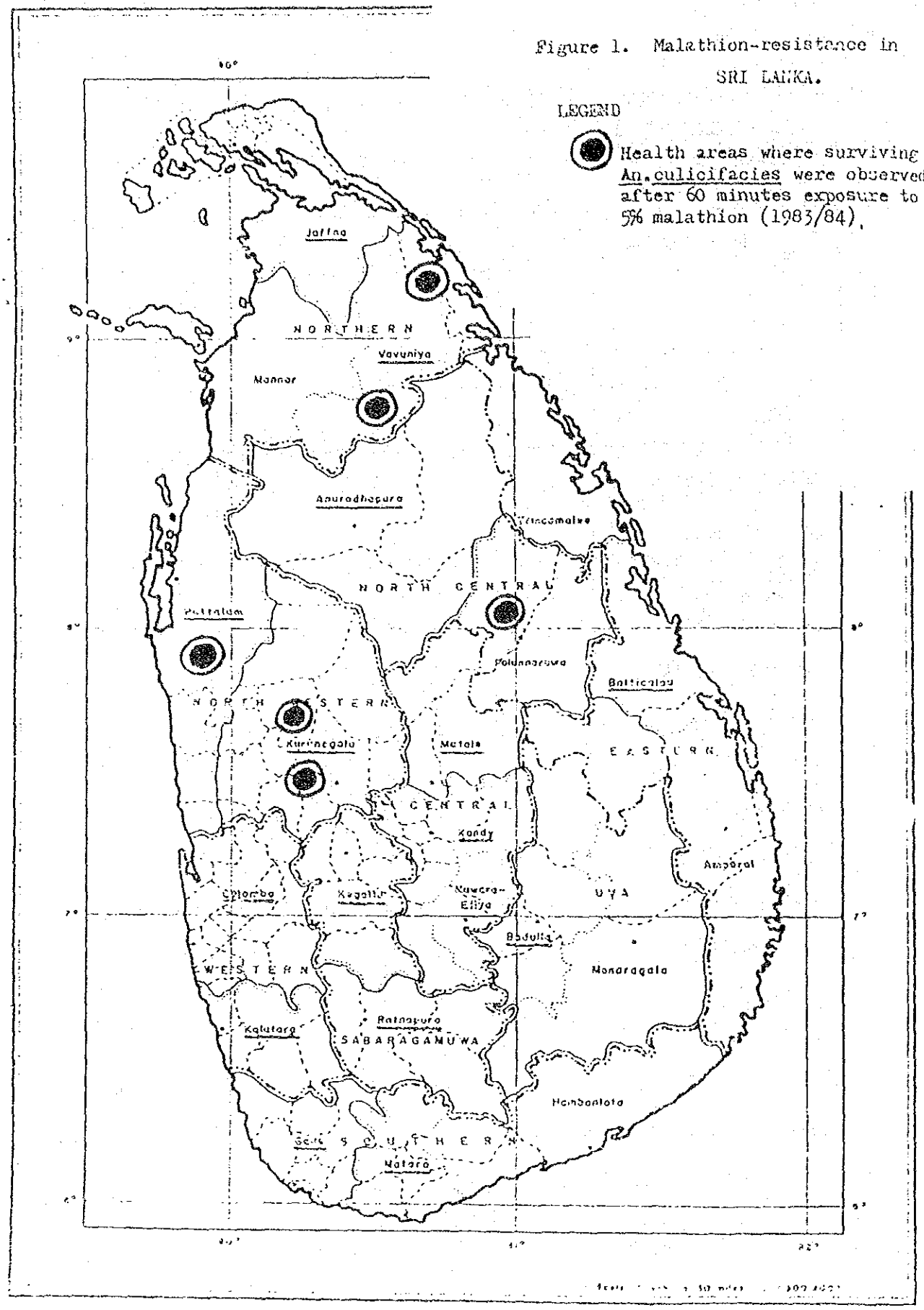
LEGEND : + survivors found

- no survivors to date

0 not tested to date

ak.

Figure 1. Malathion-resistance in SRI LANKA.



3.1.8. Larval collections :

These catches showed the predominant species in breeding places surveyed to be An.culicifacies and An.subpictus.

3.1.9. Cow bait collections :

Cow-baited collection huts attracted fewer specimens of most anophelines than did cow-baited net traps (except An.nili and An.culicifacies), confirming that most of these species are exophilic as well as zoophilic.

3.1.10. General comments on the collaboration between the entomology section and other A.M.C. sections:

In order to efficiently identify any possible technical failures which may have an entomological component, it is essential that entomological studies be carried out in areas where persistent malaria transmission is not solely due to insufficient or poor quality spraying. This can only be accomplished on the basis of the provision of adequate, up-to-date, local epidemiological background information. The direction of field teams to specific localities for spot-checks is therefore primarily the responsibility of RMOO or equivalent staff. It is noted with some concern that this is still not the normal procedure.

3.2. Research Activities

There are at present three major areas of research activity :

- insecticide resistance
- vector status and competence
- supplementary vector control measures

As exhaustive details of research activities are available in various documents, the following sections will

highlight only the essential feature in each of the areas mentioned above.

3.2.1. Insecticide resistance :

Malathion resistance in An.culicifacies needs to be studied closely. Priorities recognized include the testing of progeny of specimen surviving the discriminating dosage. The isolation of homozygous resistant population and the characterization of resistance (s) selected has to be carried out in order that decisions on alternative compounds can be made before the complete failure of malathion, should it occur.

3.2.2. Vector status and competence :

All anopheline species used in these investigations have now been shown to support the development of P.vivax to the sporozoite stage (reference : table 5 )- Natural sporozoite infections have been found in An.culicifacies An.jamesi, An.karwari,An.subpictus and An.vagus. While these data are indicative of the possibility of secondary vectors being involved in transmission, more information on actual man-biting habits and longevity under field conditions would be necessary for a proper assessment of vector status.

3.2.3. Supplementary vector control measures :

While the utility of fish as a biological agent for controlling anopheline breeding has been recognised, there are many limitations to their use. The general constraints which apply to almost all species are the need for massive breeding facilities, distritution and periodic re-introduction if the fish should fail to establish natural populations. The development of the use of larvivorous fish for malaria control requires considerable devotion and, in spite of technical skill, enthusiasm and administrative support it may take some time to achieve satisfactory results.

-(contd.,...)-

Table 5

Summary of results of laboratory infection of 15 species of *Anopheles* by feeding on gametocyte carriers of *P.vivax*, March 1982 - May 1984.

| Species | nos-fed | nos dissected (10-20 days) | percentage positive for sporozoites |
|---|---|---|---|
| *An.aconitus* | 316 | 38 | 2.6 |
| *An.annularis* | 782 | 134 | 61.2 |
| *An.barbirostris* | 345 | 202 | 5.4 |
| *An.culicifacies* | 2,006 | 366 | 10.9 |
| *An.elegans* | 55 | 15 | 20.0 |
| *An.jamesi* | 3,621 | 1,042 | 24.5 |
| *An.karwari* | 3,605 | 716 | 26.8 |
| *An.maculatus* | 769 | 312 | 25.0 |
| *An.nigerrimus* | 1,829 | 972 | 1.4 |
| *An.pallidus* | 1,195 | 672 | 36.9 |
| *An.ramsayi* | 167 | 5 | 40.0 |
| *An.subpictus* | 1,699 | 184 | 30.4 |
| *An.tesselatus* | 1,156 | 395 | 22.5 |
| *An.vagus* | 4,720 | 181 | 10.5 |
| *An.varuna* | 384 | 55 | 25.4 |

sk.

The proposed trial of Bti* against An.culicifacies is noted with interest. Other additional measures, such as those proposed from time to time by the Sarvodaya movement and others need to be scientifically evaluated before their incorporation into an integrated vector control programme. In fact, some of the methods proposed could well be more harmful than benificial.

3.3. Comparative budgetary aspects

Table 6 provides a summary of total annual A.M.C. expenditure and the proportion of this spent on the Entomology Section in 1981/82/83. It shows that A.M.C. expenditure for entomology in the first two of these years was around 1.7% of the total budget, while in 1983 this even dropped to 0.6%. Evidently, W.H.O./T.D.R. grants negotiated by the Chief Entomologist are saving on A.M.C. budget contributions for entomology.

Current allegations that Entomology takes up a high proportion of AMC money allocated for subsistance allowances (around 10%) do not take into account the arduous nature of field entomology or the long and irregular hours, which include considerable periods of unpaid overtime. Similarly, entomological work requires a high degree of mobility, as reflected by expenditure on fuel (above 4% of A.M.C. fuel budget). These, and other provisions, are no more than intrinsic consequences of any vector-borne disease control programme and should be regarded as such by those concerned.

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* Bti = Bacillus thuringiensis israeliensis, a potentially lethal pathogen of mosquito larvae (also referred to as B.TH.14).

Table 6

Expenditure incurred for Entomology section out of 1981,1982 and 1983 A.M.C. budgets (rupees)

| Year | | Salaries | Fuel | Subsistence allowances | Total * |
|---|---|---|---|---|---|
| 1981 | A.M.C. | 29,000,000 | 2,900,000 | 6,000,000 | 94,607,162 |
| | Ento | 769,374 | 126,844 | 704,324 | 1,600,542 (1.7%) |
| 1982 | A.M.C. | 36,822,163 | 2,220,571 | 8,157,750 | 118,024,607 |
| | Ento | 590,892 | 94,166 | 645,968 | 1,331,026 (1.1%) |
| 1983 | A.M.C. | unknown | unknown | unknown | 144,863,595 |
| | Ento | 119,055 | 104,081 | 622,151 | 845,287 (0.6%) |

*includes other budget items such as equipment, insecticides, drugs, etc.

sk.

## 4. OPERATIONAL ASPECTS

### 4.1. Staffing

In the seventeen regions and sub-regions reported upon, there exist twelve R.M.O. positions. Of these, five are filled, at present, and seven remain vacant with no prospects of the latter being filled in the near future. Meanwhile, the duties of the R.M.O. are being assumed by a P.H.I., with a degree of success which varies from region to region. It was reported that two of the five incumbent RMO's were new to their jobs and more interested in finding a way out of them than in learning their duties. It is hoped that the situation will change now that a start has been made on recruitment of science graduates to RMO po .

Eighty to ninety percent of the remaining vacancies in the regions are at the sprayman level.

#### 4.1.1. Training

The current over-all training status of the regional staff was reported as good or sufficient in eight of the team reports and poor or insufficient in five, with four not recorded.

Spraymen were universally reported as in need of training, both in application of the insecticide and in their persuasion of the householders to permit the spraying.

Some drivers were observed who, through a lack of knowledge of the basics of routine maintenance and operation of the vehicles were placing undue strain on them and running undue risk on the road.

Microscopists appeared to be well-trained in all cases reported. New microscopists will have to be trained for additional laboratories planned for 1984.

## 4.2. Logistics

### 4.2.1. Transport

The general state of transport was reported as fair or adequate in eight of the areas checked, poor or insufficient in four areas, two vehicles were reported as out of service, requiring repairs. Most of the fleet has seen long and hard use. It is hoped that the new vehicles scheduled for arrival this year will replace some of the older ones and increase the total fleet to allow more operational and supervisory mobility.

### 4.2.2. Equipment

Sprayers were reported in poor condition by all units of the team, with repair parts availability varying between regions. It is doubtful if there would be, at present, sufficient operative sprayers to supply a full complement of spraymen. Apparently there is no routine practice of changing nozzles periodically in order to maintain some semblance of correct output and pattern, and the practice of checking pressure regulators by measuring the timed output of a sprayer is worthless unless the nozzle is uneroded.

Safety equipment was in stock in most of the regional warehouses, but in more cases than not, the spray teams did not have helmets, rubber gloves, aprons, etc.

Microscopes were found to be sufficient for the current demand, and in good condition for their age. As demand increases, of course, more instruments will be required.

Calculators were lacking or permanently out of service in most of the regional offices, resulting in a great deal of lost time and a high risk of error in the compilation of both statistical date and in cost accounting.

-(contd..)-

4.2.3. Supplies

Microscope slides are in short supply throughout the country, resulting in a slow down of diagnoses and an inadequate epidemiological sample. It is understood that this situation is being partially alleviated this week with the arrival of 300,000 slides from WHO, and AID has programmed an emergency shipment of 800,000 more this year, as well as 300,000 additional in 1985 and the same in 1986.

Malathion seemed to be in good supply for the moment in all regional warehouses except in Kekirawa where spraying has stopped for lack of this material. Ampara's stock was not large. The Puttalam warehouse has eight drums of "acetellic" in stock.

Drugs appear to be in good supply except in Ampara where there are no reserves in storage. In four of the regions visited the supplies of Primaquine and Daraprim appeared to be of doubtful quality.

Vehicle Fuel : It was expressed in all regions that the monthly fuel ration should be increased in order to allow a higher degree of operational and supervisory mobility.

4.3. Operational Performance

4.3.1. Spray Operations

Achievement of house coverage targets was generally found to be poor, ranging from 0% in Kekirawa (blamed on lack of malathion) to 93% claimed in Embilipitiya and Badulla. No attempt will be made here to list and compare the various rates of achievement of the regions because the figures provided were admittedly unreliable in many cases and some regional figures included partially sprayed houses while others did not.

Spraying techniques are not according to WHO standards, but, as noted elsewhere, the state of the sprayers and degree of erosion of the nozzles would make correct and consistent dosages doubtful even if correct techniques were in use.

-(contd..)-

It was noted that the characteristic strong smell of malathion was absent in houses just sprayed or even in the process of being sprayed, leading one to wonder if the material being applied was, in truth, full strength material.

The practice of spraying up to the ridge-pole (often as high as five meters) is apparently based upon an entomological study of An. culicifacies resting habits, and, therefore not disputable. However, we note that in some regions the eaves and outer walls from the top to a line even with the bottom of the eaves were sprayed, while in others only the eaves and not the outer walls were covered. There should be some consistency in this practice, based upon entomological findings.

Spraymen and spray team leaders did not appear to be attempting very hard to persuade refusing householders to permit total treatment of their houses.

4.3.2. Health Education

The only malaria posters seen were in a clinic where blood samples were being taken and anti-malarials being dispensed. Obviously the people who had reached that point needed no persuasion. Such educational material should have a wider dispersal and be used to direct the public to the clinics and volunteers.

4.3.3. Blood sampling

While impossible to implement until the slide shortage is alleviated, it appears that a valuable source of malariometric data is being lost by having the volunteers distribute drugs without taking blood samples. Training such people in this technique has proven to be entirely practical in other programmes, and Sri Lanka's excellent postal service should make this system even more feasible then in many of these other programmes.

## 5. TRAINING

### 5.1. Training Carried out.

Training activities carried out by AMC training staff during 1983 are summarised in Tables 7, 8 and 9. . Outside the training centre these were mainly of one day's duration only, and were for the public health personnel attached to various health areas. Categories of personnel included Public Health Inspectors, Public Health Nurses and Family Health Workers. This training included Sarvodaya and other Volunteers, and consists of lectures and a demonstration of blood filming and treatment. The high incidence of malaria in certain areas in 1983 stimulated Volunteers to take up this work, but since then there has been a certain falling-off in enthusiasm.

Training carried out at the Training Centre (Table 8 ) was mainly for the benefit of students, postgraduates, medical officers and various categories of AMC staff such as microscopists, regional malaria officers and public health inspectors.

### 5.2. Health Education & Public Relations Activities

These are summarised in Table 9 . Intercycle conferences are held after each spraying round. Apart from technical operational aspects, these conferences are also utilised to impress upon the workers the necessity of maintaining good public relations.

Production of a pamphlet in Sinhalese dealing with malaria be intended for field distribution, is under way.

### 5.3. Training Required

Well motivated and trained personnel is one of the basic requirements of a dynamic anti-malaria campaign, and introductory, in-service refresher and special training are all-important components of the training process. Appropriate training in the context of operational efficiency and career development repays its cost many times over in terms of operational impact, technical efficiency and staff morale.

## TABLE - 7

Training conducted outside the training centre 1983

| Category | | No. | Date | Venue |
|---|---|---|---|---|
| Rural Volunteers | | 45 | 27.04.83 | Thanamalwila Sarvodaya Centre |
| Rural Volunteers | | 19 | 28.04.83 | Sugar Factory Sevanagala |
| Public Health Inspectors<br>Public Health Nurses<br>Family Health Workers | | 35 | 08.07.83 | MOH's Office, Negambo |
| Public Health Inspectors<br>Public Health Nurses<br>Family Health Workers | | 25 | 08.07.83 | MOH's Office, Kochchikade |
| Family Health Workers | | 30 | 29.07.83 | MOH's Office, Panadura |
| Public Health Inspectors<br>Public Health Nurses<br>Family Health Workers | 04<br>01<br>32 | 37 | 08.09.83 | MOH's Office, Dehiowita |
| Public Health Inspectors<br>Public Health Nurses<br>Family Health Workers | 06<br>0<br>39 | 45 | 08.09.83 | MOH's Office Kuruwella |
| Public Health Inspectors<br>Public Health Nurses<br>Public Health Workers | 07<br>0<br>20 | 27 | 08.09.83 | MOH's Office, Warakapola |
| Public Health Inspectors<br>Public Health Nurses<br>Family Health Workers | 14<br>02<br>63 | 79 | 09.09.83 | MOH's Office, Mawanella |
| PHII 07, PHNN 03, FHWW 50 | | 60 | 09.09.83 | SHS Office, Kegalle |
| PHII 07, PHNN 04, FHWW 51 | | 62 | 12.09.83 | MOH's Office, Mirigama |
| PHII 06, PHNN 10, FHWW 59 | | 75 | 13.09.83 | MOH's Office, Minuwangoda |
| PHNN (Diploma in Nursing) 35 | | 35 | 23.12.83 | NIHS, Kalutara |

## TABLE - 8

### Training conducted at the M.E.T.C. in 1983

| Category | | Period | No. | Duration |
|---|---|---|---|---|
| Microscopists | | 17.11.82 - 14.02.83 | 20 | 06 weeks for 1983 |
| Medical Officers under public health training at NIHS Kalutara | | 21.01.83 | 08 | 01 day |
| Personnel attached to Assessment Branch AMC Has. | | 23.02.83 - 24.02.83 | 09 | 02 days |
| PHI/AMC (Refresher Training) Batch 1 | | 02.03.83 - 04.03.83 | 14 | 03 days |
| AMC Laboratory Staff MLT | 06 | | | |
| Microscopists | 04 | | | |
| F.A.(Clerical)Lab. | 12 | 07.03.83 - 08.03.83 | 22 | 02 days |
| PHI/AMC (Refresher Training) batch | 02 | 09.03.83 - 11.03.83 | 18 | 03 days |
| ( -do- ) | 03 | 16.03.83 - 18.03.83 | 18 | 03 days |
| ( -do- ) | 04 | 21.03.83 - 23.03.83 | 14 | 03 days |
| Medical Officers (MD Community Medicine) | | 05.05.83 - 06.05.83 | 06 | 02 days |
| MBBP students group No.1 | | 27.06.83 - 01.07.83 | 17 | 05 days |
| -do- No.2 | | 04.07.83 - 08.07.83 | 16 | 05 days |
| -do- No.3 | | 11.07.83 - 15.07.83 | 15 | 05 days |
| PHI/AMC (newly appointed to AMC) | | 14.11.83 - 05.12.83 | 08 | 03 weeks |
| PHI/Range | | 14.11.83 - 05.12.83 | 02 | 03 weeks |
| Regional Malaria Officers | 05 | | | |
| Parasitologist | 01 | | | |
| Entomologist | 01 | 01.12.83 - 29.02.84 | 07 | 03 weeks |

Table : 9

Exhibitions, participated in by the AMC - 1983

| Date | Place | Estimated att. |
|---|---|---|
| 23.02.83 - 27.02.83 | St. Benedicts College, Colombo | 28,500 |
| 09.10.83 - 11.10.83 | Kamburupitiya Maha Vidyalaya | 5,000 |
| 20.10.83 - 23.10.83 | Nivithigala Maha Vidyalaya | 25,300 |
| 12.12.83 - 14.12.83 | Hilagiriya St. Pauls Girls School | 2,700 |

Cinema shows conducted - 1983

| Date | Place | Health Area | Estimated att. |
|---|---|---|---|
| 07.03.83 | Minnana Temple | Ehaliyagoda | 900 |
| 08.03.83 | Kolombuwewa play ground | -do- | 1,300 |
| 09.03.83 | Napawala State Plantation | -do- | 1,000 |
| 10.03.83 | Amugoda Temple | -do- | 1,500 |
| 11.03.83 | Iddamalgoda Temple | -do- | 2,000 |
| 12.03.83 | Kaluandura Temple | -do- | 800 |
| 27.04.83 | Thanamalwila Sarvodaya Centre | Embilipitiya | 150 |
| 28.04.83 | Kiribbanara | -do- | 1,000 |
| 29.04.83 | Kotaweheramankada R.D. hall | -do- | 1,200 |
| 07.05.83 | Bombuwala Women's Society Health | Kalutara | 2,000 |
| 09.05.83 | Etiliwewa Central College | Monaragala | 2,500 |
| 10.05.83 | Waguruwela Central College | -do- | 1,500 |
| 11.05.83 | Maligawila Govt. School | -do- | 5,000 |
| 12.05.83 | Kotiyagala Govt. School | -do- | 800 |
| 13.05.83 | Mutukandiya Govt. School | -do- | 2,000 |
| 14.05.83 | Maha Kalugolla Govt. School | -do- | 1,500 |
| 16.06.83 | Kotadoniyawa Maha Vidyalaya | Mirigama | 2,000 |
| 17.05.83 | Keenadeniya Maha Vidyalala | -do- | 1,800 |
| 18.06.83 | Halugama Maha Vidyalaya | -do- | 1,700 |
| 17.09.83 | Angulugaha Pattarama Temple | Galle | 1,500 |
| 18.09.83 | Imaduwa Maha Vidyalaya | -do- | 1,800 |
| 19.09.83 | Pinnaduwa Govt. School | -do- | 900 |
| 10.10.83 | Hakuruwela Govt. School | Hambantota | 500 |
| 11.10.83 | Binkama Govt. School | -do- | 100 |
| 12.10.83 | Yodakandiya Govt. School | -do- | 800 |
| 13.10.83 | Kataragama Govt. School | -do- | 1,500 |
| 13.10.83 | Regional Laboratory | -do- | 30 |
| 14.10.83 | Suriyawewa Govt. School | -do- | 1,000 |
| 15.10.83 | Anugunukolapelessa Police Station | -do- | 1,000 |
| 16.11.83 | Intensive Health Education Programme conducted | | |
| 20.12.83 | in Mahaweli Development area in Anuradhapura | | |
| | Film shows and lectures were conducted in 36 | | |
| | places during which there was an estimated | | |
| | attendance of | | 22,600 |

All campaign staff should be given the opportunity of remaining abreast with new technical developments in their field, and so maximum use should be made of training opportunities from whatever source. Malaria control is now becoming an increasingly complex operation, with new materials, methods and techniques becoming available for operations, monitoring and epidemiological evaluation. It is essential that an anti-malaria campaign such as Sri Lanka's on which so much depends, shall be enabled to keep up with such new developments.

6. Community Involvement, Intersectoral Cooperation and Primary Health Care.

6.1. Community involvement :

So far this factor remains largely in an exploratory stage in Sri Lanka. The main organisation involved as such is the Sarvodaya Shramadana movement. Here the drive is for vector control, aimed primarily at malaria control, at the village level. Certain NGOs have joined with Sarvodaya in promoting this venture, although the AMC is also nominally involved at the advisory level.

Unfortunately the proposed methods to be utilised in this endeavour, although possibly of some efficacy in certain foreign locations, have not yet been demonstrated to have any reliable effect against the local Sri Lanka mosquito fauna. Some of the proposed techniques may even increase the reproduction of certain mosquito species under Sri Lankan conditions and thus bring the whole approach to community involvement into disrepute.

For example, one proposed method is the pollution of river-bed pools. While this may discourage breeding of the main malaria vector, apart from possible harm to users of river-water, this method may well provide ideal conditions for certain other mosquito species which can either be a nuisance or even vectors of other diseases. This would have to be investigated under Sri Lankan conditions. Another proposed method is the wearing of a repellent or insecticide-impregnated jacket. Again this does not appear to have been evaluated under Sri Lankan conditions, particularly as regards public acceptability.

In such a situation, where well meaning NGOs and local communities are making an attempt to reduce the risks of vector-borne disease they certainly deserve every encouragement on the part of the authorities. Laudable zeal should however be tempered with technical acceptability for use under Sri Lankan conditions, otherwise the result may be disillusionment and the community participation approach to primary health care may well fall into disrepute through lack of appropriate technical guidance.

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With this in mind it would be useful to have a Government body to examine such proposals and give appropriate technical advice to community efforts. The AMC and other vector-borne disease control bodies such as the Anti-Filariasis Campaign and DHF Campaign should be represented on such an advisory panel.

6.2. Intersectoral Cooperation

The main intersectoral activity in which the AMC is involved is with the Mahaweli Development Authority. However this cooperation does not function nearly so well as it should. Much closer planning control is required, and it should be realised by the Mahaweli authorities that cooperation is a reciprocal activity. There is no point in the AMC training voluntary collaborators in Mahaweli areas if the Mahaweli authorities cut off drug supply to these volunteers.

Some small amount of intersectoral activity appears to exist also with the Irrigation and Forestry Departments. However here also most of the cooperation appears to be one way. Intersectoral meetings appear to be held fairly regularly in some areas, however the impact of these on malaria control is not at all clear. It is obvious that the full potential of intersectoral cooperation remains to be exploited in Sri Lanka, and the broad field of environmental management for malaria control is one of the most promising areas. In this field PEEM* is now prepared to co-operate in stimulating such intersectoral activities in Sri Lanka.

6.3. Primary Health Care

There appear to be two main categories of primary health care worker in Sri Lanka.

(a). Family Health Workers, and
(b). Voluntary collaborators.

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* Panel of Experts on Environmental Management (WHO/FAO/UNEP)

-(cont..)-

The former category has more formal health duties than the latter, but is also supposed to treat malaria cases and could even take blood films, thus acting as an important supplement to the malaria surveillance system.

The voluntary collaborators are more informal and can also treat a variety of diseases other than malaria such as eye and gastro-intestinal infections. They can also stimulate environmental sanitation. Being located in the village the volunteer is in the forefront of any disease epidodes which occur and is thus worthy of close support in training and materials. Enthusiasm for community service brought on by an epidemic situation tends to wane during inter-epidemic periods, and particular efforts must be made to maintain the interest of the voluntary workers during this period.

Unfortunately, during the course of the present assessment the Team saw instances where Family Health Workers and Volunteers were not being provided with appropriate support. This is a situation which deserves to be remedied immediately, not only because of the real danger of a very serious malaria episode, but also because the country cannot afford to have the concept of primary health care by volunteers brought into disrepute and the volunteers themselves demoralised.

## 7. RECOMMENDATIONS

### Epidemiology

7.1. The present system for the processing and statistical digestion of blood examination results no longer provides efficient operational guidance. A more up to date, epidemiologically sound tabulation according to a standard layout would considerably enhance the identification of problem areas/foci, as well as streamline supervision and evaluation work.

It is therefore recommended that serious consideration should be given to the possibility of computerisation of this system at the laboratory level as a first step.

7.2. The indicator institutions did not appear to have functioned as envisaged because of logistic constraints and frequent changes in criteria for blood filming. The team considers that these institutions would provide useful epidemiological information if functioning properly and recommends that one indicator institution for each region be maintained, at the same time ensuring that blood filming is not interrupted. Indicator institutional sampling should be of all OPD attendances, both fever and non-fever cases and both children and adults.

To make this feasible, institutions should be selected which have typically less than 100 OPD attendances per day.

### Entomology

7.3. The scattered appearance in 1983/84 of malathion resistant *An.culicifacies* calls for an immediate analysis of cross-resistance patterns in order to select suitable alternatives in the event of widespread malathion failure should it occur at a later stage. It is therefore strongly recommended that the completion of the insectory/laboratory, under construction at Colombo since 1981, should be undertaken as a matter of extreme urgency.

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In addition, field trials should be undertaken to study the potential of BHC or insecticide mixtures, for example BHC/ACTELLIC, in preventing or delaying the development of resistance.

7.4. Since the cross-resistance pattern of the developing malathion resistance in An.culicifacies is still unclarified, the Team recommends that both malathion and fenitrothion should continue to be reserved for public health use until such time as the situation with regard to cross resistance has been investigated. The matter should then be subjected to review.

Operations

7.5. The Team, alarmed by the evidence for diversion of AMC malathion stocks for use by farmers, and concerned at the probable serious effect of this in reducing the dosage level in houses, and in selection for malathion resistance in the anopheline vector, - both with extremely serious operational consequences for the AMC- recommends that the position be fully investigated and legally supported deterrent action be taken against those responsible in order to prevent any further misuse.

7.6. The evaluation team is extremely concerned at the situation which has resulted in a shortage of such essential supplies as microscope slides and drugs. The shortage of microscope slides has had serious repercussions. Among other things, it has produced exaggeratedly high slide positivity rates and has delayed the-very-much-hoped-for contribution of PHC services to the campaign, especially through the participation of FHWW in case detection and treatment.

It is therefore urgently recommended that adequate stockpiles and smooth [illegible] insecticides, spraying machinery and spare parts be assured for the future.

7.7. Shortage of fuel has in many cases a serious effect on operational efficacy and supervision.

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It is therefore recommended that the required supply of fuel be ensured and the imprest replenished promptly.

7.8. In order to improve standards of insecticide application it is recommended that new spray nozzles should be used for each spray cycle.

Parasitology

7.9. Recognizing that the testing of P.falciparum sensitivity to 4-aminoquinolines has finally started to progress satisfactorily from late 1983, the team recommends that the activity be extended to cover all P.falciparum areas so that base line data on sensitivity levels is available for a monitoring system expected to be in operation by 1985.

Chemotherapy

7.10. In view of the reluctance of some physicians especially in NCP to administer primaquine in the treatment of malaria because of the occurrence of IVH in some cases and the danger that this reluctance may spread elsewhere, which would be prejudicial to the Programme, the team recommends that the AMC undertake a countrywide survey of G.6.P.D. deficier to determine the extent of this defect in the population and its inf'ence i IVH. The Team further recommends that all cases of IVH encountered in medi institutions be thoroughly investigated, reported on a form designed for th: purpose and records carefully maintained for review by a Committee.

7.11. Health Education and Public Relations

Adverse publicity has continued to damage the reputation and goodwill of certain sections of the AMW, and has deviated energy and attentic from the objectives of the campaign. In order to restore confidence with administrators, politicians, the public and the scientific community, the AMC and the Ministry should more vigorously promote positive publicity, highlighting the Campaign's aims and achievements by means of Press Conferences/press releases and scientific publications.

/...

7.12. Coordination of the approach to malaria control within the public health service leaves much to be desired. In order to improve case finding and treatment it is recommended that -

(a). The use of posters, pamphlets etc. be expanded so that they may be found wherever there are congregations of people in malarious areas and that the posters direct the public to the nearest blood sampling and treatment centres.

(b). A manual on malaria should be prepared and distributed for the use of general health personnel.

7.13. For the encouragement of personal protection aspects of malaria control in the context of primary health care, it is recommended that each family in the development areas be provided with bed-nets, sufficient for the size of the family, by all development agencies in malarious areas - especially the Mahaweli Development Authority.

7.14. Staffing

In view of the persistent difficulties encountered in filling the key positions of Regional Malaria Officers, and the favourable impressio gained by the Team of the few science graduates seen who were already in thi position, and taking into account the existing coordination difficulties and misunderstandings between entomology field teams and some Regional Malaria Officers - also the strong likelihood that this situation will improve as regional posts are taken over by science graduates,

again recommends that all Regional Malaria Officer posts be filled by specially trained science graduates as soon as possible.

Training

7.15. Conscious of the need for the AMC staff to keep abreast of current technical developments, in the interest of operational efficacy and programme planning flexibility, recommends that the continuous training of all AMC staff at all levels be maintained and expanded, and [illegible] national and international be fully utilised by the appropriate staff.

Laboratory

7.16. Since the error rate of the regional microscopists is extremely low (less than 1%) and in order to reduce loss and delay of slides in transit, it is recommended that only a proportion of negatives and positives (P.v.) should be sent by the RMO for cross-checking. All P.f. slides should continue to be cross-checked. The proportion of slides to be cross-checked should be established according to the performance of the regional laboratory concerned.

Primary Health Care

7.17. In view of the important role of volunteers in case detection and treatment, and especially their front-line situation in an epidemic outbreak, the Team recommends that they be given the fullest encouragement and support, both in training and materials.

It is further recommended that the volunteers be enabled both to give treatment and to take blood slides.

7.18. Non Governmental Organizations are becoming increasingly involved in projects or trials with a health component, for example in vector control activities as part of community participation. In order to provide appropriate technical support for such endeavours, and to prevent them from falling into disrepute, the Team recommends that all such NGO involvement should be channeled through a government committee which would advise on technical feasibility of methods proposed, and on which the Ministry of Health and in particular AMC should be represented.

Field Applied Research

7.19. Since more than 95% of the cases reported from 1982 onwards are P.vivax it is recommended that an investigative follow-up should be carried out on a sample of P.vivax cases to the extent feasible. If many relapses are detected possible changes may have to be introduced in treatment schedules.

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7.20. It seems that daily administration of radical treatment by volunteers may not be feasible. If so, it is recommended that a trial be carried out of weekly or bi-weekly schedules using appropriate drug regime. Such schedules should co-incide with the health/AMC personnel's cycle of activities.

General

7.20. In view of the outstanding economic importance of the Mahaweli Development Area, and the serious consequences which would be provoked by a crippling malaria epidemic - to the risk of which the area is exposed at the present time -

the Team recommends that some financial provision should be made by the Mahaweli Authority for anti-malaria activities. This may be regarded as a form of worthwhile insurance.

7.21. Much loss of valuable working time, petrol wastage and transport wear and tear results from the fact that senior staff on supervisory visits and technical investigations cannot afford to stay overnight in appropriate locations. This situation has been identified as one of the main reasons for inadequate levels of supervision. The Team therefore recommends that for the sake of both operational efficiency and economy such senior staff should receive adequate field allowances to enable overnight stay. The figure of Rs. 500/= per night is regarded as reasonable at the present time.

7.22. The AMC accommodation is unsuitable for meetings due to the poor acoustics and extraneous noise. Misunderstandings can easily arise under such conditions. It is therefore recommended that future evaluation team deliberations be held in a more suitable venue.

## 8. ACKNOWLEDGEMENTS

The Review Team wishes to express its sincere thanks to the Ministry of Health for facilitating the work of the Team, and for the kind reception received.

The Team is particularly grateful for the frank and cooperative attitude shown by the Director of the Anti Malaria Campaign and all his staff, both at Headquarters and in the field. Field visits were smoothly organised.

The Team greatly appreciated the continued support and assistance of the WHO Programme Co-ordinator and Representative in Sri Lanka, and the WHO Malaria Staff.

The active participation of the representatives of the Ministries of Finance, Plan Implementation and External Resources was most welcome.

The capable typing assistance of Mrs. Anne Therese Xavier and Miss. Senehalatha Kathriachchi together with the help of Mr. A. Pathmanathan is acknowledged with thanks.

ANNEXURE : 1

# AMC BUDGET 1983

## (1) Recurrent Expenditure

| | | |
|---|---|---|
| (a) Personal Emoluments | - | 51,030,000 |
| (b) Travelling Expenses | - | 8,945,000 |
| (c) Supplies and Requisites | - | 86,347,000 |
| (d) Repairs and Maintenance of Capital assets | - | 100,000 |
| (e) Transportation, Communication Utility and other services | - | 1,500,000 |
| | | 147,922,000 |

## (2) Capital Expenditure :

| | | |
|---|---|---|
| (a) Building for Central Stores 16 Regional Offices & Stores | - | 750,000* |
| (b) Insectory for Entomology | - | 500,000x |
| (c) Spraying Equipment | - | 2,000,000 |
| | | 3,250,000 |

* Grant from Netherlands.

x USAID

A/-

ANNEXURE : 2

## A.M.C. FISCAL POSITION FOR PERIOD 1977 - 1983 (IN Rs.)

| Specific Year | Total Health Ministry Budget | Total Approved AMC Budget | Total Budget Allotted | Total Budget expended | Budget Amount provided by Donor Sources | % of Budget from Donor Sources | Yearly Value of Rs. $ |
|---|---|---|---|---|---|---|---|
| 1977 | 512,734,900 | 100,855,700 | 100,855,700 | 79,151,733 | 13,202,000 | 13.08% | 14 : 1 |
| 1978 | 528,298,409 | 107,256,565 | 107,256,565 | 86,348,750 | 75,351,274 | 70.25% | 15 : 1 |
| 1979 | 861,924,898 | 136,531,100 | 136,531,100 | 121,627,093 | 102,000,000 | 74.70% | 15 : 1 |
| 1980 | 882,082,097 | 82,763,100 | 82,763,100 | 81,481,350 | 39,200,000 | 47.36% | 16 : 1 |
| 1981 | 997,155,640 | 105,543,300 | 105,543,300 | 94,607,162 | 56,550,000 | 53.58% | 20 : 1 |
| 1982 | 975,910,000 | 123,508.000 | 123,508,000 | 118,024,607 | 72,219,460 | 61.1% | 21 : 1 |
| 1983 | 1,027,107,000 | 151,172,000 | 151,172,000 | 148,275,728 | 79,993,718 | 53.9% | 24 : 1 |

ANNEXURE : 3

DISTRIBUTION OF VEHICLES AND SPRAY MACHINES

| | Regions and Sub Regions | No. of vehicles | | No. of spray machines | |
|---|---|---|---|---|---|
| 01. | Jaffna | 03 | 06 | 36 | 201 |
| | Kilinochchi | 03 | | 165 | |
| 02. | Vavuhiya | 04 | 09 | 50 | 150 |
| | Mulativu | 02 | | 57 | |
| | Mannar | 03 | | 43 | |
| 03. | Anuradhapura | 08 | 12 | 174 | 289 |
| | Kekirawa | 04 | | 115 | |
| 04. | Trincomalee | 06 | 10 | 126 | 206 |
| | Kahatagasdigiliya | 04 | | 80 | |
| 05. | Puttalam | | 04 | | 120 |
| 06. | Colombo | | 25 | | 18 |
| 07. | Kurunegala | 06 | 11 | 126 | 541 |
| | Gokerella | 02 | | 185 | |
| | Bingiriya | 01 | | 80 | |
| | Wariyapola | 02 | | 150 | |
| 08. | Maho | 02 | | | 146 |
| 09. | Matale | 07 | 09 | 77 | 182 |
| | Dambulla | 02 | | 105 | |
| 10. | Kandy | 05 | 07 | 89 | 174 |
| | Kegalle | 02 | | 85 | |
| 11. | Hingurakgoda | 03 | 07 | 79 | 169 |
| | Polonnaruwa | 04 | | 90 | |
| 12. | Batticaloa | 07 | 12 | 92 | 180 |
| | Valachchenai | 05 | | 88 | |
| 13. | Amparai | 03 | 08 | 104 | 163 |
| | Thirukovil | 05 | | 59 | |
| 14. | Moneragala | | 09 | | 174 |
| 15. | Badulla | 04 | 11 | 21 | 159 |
| | Bibile | 07 | | 138 | |
| 16. | Embilipitiya | 12 | 13 | 173 | 203 |
| | Balangoda | 01 | | 30 | |
| 17. | Hambantota | 07 | 09 | 211 | 302 |
| | Matara | 02 | | [illegible] | |
| | T O T A L : | | 162 | | 3377 |

ANNEXURE : 4

## TRANSPORT POSITION IN A.M.C.

### (A). TOTAL NUMBERS OF AMC VEHICLES (as of June 30, 1984)

| Category : | In service : | Repairable : | Condemned State : | Total : |
|---|---|---|---|---|
| Jeeps | 49 | 13 | 07 | 69 |
| Land Rovers (Diesel) | 67 | 09 | 01 | 77 |
| Land Rovers (Petrol) | 47 | 04 | 04 | 55 |
| UNIMOG | - | - | 02 | 02 |
| WV Pick up | 02 | - | 09 | |
| WV Micro Bus | - | 01 | 01 | 02 |
| Trucks | 07 | - | - | 07 |
| Car | 01 | - | - | 01 |
| T O T A L : | 173 | 27 | 24 | 224 |

### (B). HEADQUARTERS

| Category : | In Service : |
|---|---|
| Jeeps | 04 |
| Land Rovers (Diesel) | 08 |
| Land Rovers (Petrol) | 02 |
| WV Pick up | 02 |
| Trucks | 07 |
| Car | 01 |
| T O T A L : | 24 |

sk.

Annexure : 5

SUPPLY POSITION OF AMC DRUGS INSECTICIDE AND OTHER ITEMS (AT HEADQUARTERS)

| | Balance as at June 1983 | Received up to 31.12.83 | Issued up to 31.12.83 | Balance as at 31.12.83 | Received up to 01.06.84 | Issued up to 01.06-84 | Balance as at 01.06.84 |
|---|---|---|---|---|---|---|---|
| .. DRUGS | | | | | | | |
| Chloroquine Tablets | 587000 Bayers<br>292000 Other | 3160000 | 3430000 | 609000 | 2731000 | 1688000 | 1652000 |
| Primaquine Tablets | 494000 | 3102000 | 2527000 | 1069000 | 1750000 | 2694000 | 125000 |
| .. INSECTICIDES | | | | | | | |
| Malathion 50% w.d.p. | 523865 Kgs. | 786510 | 828420 | 481955 | 1086672 | 848852 | 719775 |
| Malathion 96% | 500 Kgs | - | - | 500 | - | - | 500 |
| Ulmite | 635 Liters | - | 60 | 575 | - | - | 575 |
| Pyrethrum | 9.5 Kgs | - | - | 9.5 | - | 2.5 | 7 |
| .. PROTECTIVE CLOTHING (Spray personnel) | | | | | | | |
| Helmets | 596 | - | 250 | 346 | - | - | 346 |
| Khaki Shirts | 1666 | 2448 | 3148 | 966 | 1400 | 90 | 2276 |
| .. SPRAY MACHINES | - | - | - | - | 300 | 299 | 01 |

国　　名　タ　イ

指導科目　薬用植物

派遣先機関　チュラロンコン大学薬学部

専門家名　1. 樋口　義洋

2. 戸部　博

3. 河野　俊彦

赴任時現職　1. 千葉大学薬学部

医薬品素材学講座生薬学研究室講師

2. 千葉大学理学部生物学科

助　手

3. 千葉大学医学部肺癌研究施設

病理研究部　助手

派遣期間　1. 1984.8～8.31

2.　〃　～8.16

3.　〃　～8.10

# 業　務　報　告　書

著者はタイ国民間伝承医薬品，及び薬用植物の共同調査を，チュラロンコン大学薬学部のスタッフと行った。

この調査では採取可能な伝承医薬品，及び薬用成分を含有すると考えられている植物の一部について，その成分試験を行い，かつその基原植物等の腊葉を作製，チュラロンコン大学薬学部に1セットを寄贈した。

今回携行した二波長クロマトスキャナーは，調査対象物の品質評価，植物成分の分析等に主として用いた。同時に広い応用範囲をもつこの機械の活用度を増すために臨床化学，公害等の薬学全般，及び臨床検査への利用について，技術指導を行った。

以下，項目に従って述べる。

## 1. 講演，技術指導について

下記の項目で野外調査を行う前に講演，引き続き技術指導を行った。野外調査後も採集資料の成分分析と併行し，出来るだけ多人数に二波長クロマトスキャナーのトレーニングを行った。

〔題目〕二波長クロマトスキャナーの伝承医薬品（生薬，薬用植物）及び臨床医学への応用。

〔対象者・人数〕チュラロンコン大学薬学部助教授，助手，インストラクター及び大学院学生約25名。

〔概要〕二波長クロマトスキャナーの原理と生薬成分，薬用植物成分の分析，及び臨床医学への分析手段としての応用について説明した。

対象者の専門が多方面にわたっているので，各々につき例を示し述べた。

また，伝承医薬品及び未利用薬用植物の評価・分析についてはその専門分野の研究者と詳細な討論を行うとともに，このクロマトスキャナーを利用する調査・研究方法を指導した。機械の操作及び分析方法は具体的にマンツーマンで指導し，研究活動に利用できるようにした。さらに熟練者を養成し学部内の使用者にトレーニング出来るよう手はずを整えてきた。

更に，薬用植物，伝承医薬品の野外調査及びその評価を助教授，助手クラス4名と行った。これらの調査研究は指導者（医薬資源開発に情熱をもった者），資金等の問題から現実的には彼らにとって困難なことである。

ここで得られたサンプル等は現在チュラロンコン大学医学部で，今回の携行機材を利用して，研究が続行されている。

2. 携行機材について

二波長クロマトスキャナー及び関連機材は，薬学部へ寄贈した。①で述べた如く，二波長クロマトスキャナーは生薬・薬用植物の成分研究・品質評価に用いるのみでなく，臨床化学・公害・薬理学等へも充分活用できることをチュラロンコン大学薬学部のスタッフに講じるとともに，その使用方法についても，充分トレーニングを行ってきた。

二波長クロマトスキャナーの保守は容易であり，維持には電気代の他はほとんど出費を要せず，取り扱いについても比較的簡便である。

薬学部では最初の一台でもあり，今後大いに利用されるものと思う。

野外調査に用いた種々の携行機材についても，学部に寄贈した。これらは学生実習用にしたいとの学部の意向であった。

3. 受入国における専門分野の水準について

伝統的に医薬品として利用されている生薬・薬用植物は非常に多い。（1,000以上といわれている。）しかし，本格的に研究の対象になっているものは少なく，その薬品の評価（医薬品として効果はどうか，毒性についてはどうかを含めて）という観点からすれば，利用者にとっては，はなはだ不安なことと思われる。

日本と違い，庶民の生活の中に生薬が溶け込んでいながら，本格的に研究に取り組んでいるとは見られない。この原因は，学問的に水準が低いこと，研究者が少ないこと（大学の研究室スタッフは日本の国立大学より多い）もあるが，学者が外国（イギリス，アメリカ，日本等）

で研鑽を積んで来ても，本国で研究を続行できない事情にあると思われる。

即ち，現在の科学の発展は，研究用の機械に大部分を頼らなければならない。しかしながら器具・機械類はより高価になりつつある。

一流といわれるこの大学でも著者の見学した限りでは，日本ではありふれた器具・機械等も無く，外国の研究者に研究の大部分を担ってもらわざるを得ない状態であった。発展途上国が，自前で研究できるよう我々は技術協力・機材の援助を行う必要があると考えた。

漠大な未開発医薬資源を持ちながら，残念なことである。

4. 満足な技術指導を行うには。

こまごまとした実験器具を種々持参する必要があります。携行機材申請後でも，出発直前まで国内で購入できるような方法があれば良いと思います。さしあたっては，支度料をあてるか，自分の研究用器具を持参することになります。

## 業務日誌

樋口義洋

| 月 | 日 | 曜日 | 内容 |
|---|---|---|---|
| 8. | 1 | 水 | 成田空港で携行品の送付手続きを旅行代理店とする。<br>無事終了（完了）<br>夕刻，バンコク到着<br>ＪＩＣＡ バンコク事務所の能代さん，高山さんと共に通関手続きをする。今日中には終らないので明日チュラロンコン大学の代表（Ekarine）と事務所の方々とで通関を済ませることとした。チュラロンコン大学の車で宿舎へ |
| 8. | 2 | 木 | 午前中，ＪＩＣＡバンコク事務所，外務省高山一等書記官，チュラロンコン大学薬学部長，大学スタッフに挨拶に出向き，今後の業務の連絡及び打合せをする。<br>携行機材は通関を済ませる。大学に無事到着。梱包をとき，設置準備をする。 |
| 8. | 3 | 金 | 携行機材の設置，試運転をする。<br>機材は破損なく順調に作動する。<br>午後，河西ＪＩＣＡバンコク所長に挨拶に行く。 |
| 8. | 4 | 土 | 休　日 |
| 8. | 5 | 日 | |

| 月　日 | 曜　日 | 内　　容 |
|---|---|---|
| 8.　6 | 月 | 午前中，チュラロンコン大学学長出席下．ＪＩＣＡ河西所長は学部長へ，クロマトスキャナー等携行機械の贈呈を行う。<br>贈呈式に出席（能代，高山書記官両氏出席）。<br>午後，クロマトスキャナーの調整及びデモンストレーションの準備。 |
| 8.　7 | 火 | 助手２名にクロマトスキャナー分析法について，デモンストレーションをする。<br>午後，トレーニングを行う。<br>技術協力及び共同調査のあり方について討論する。会議後会食。 |
| 8.　8 | 水 | 午前中，二波長クロマトスキャナーを用いる分析法について講議。<br>講議終了後デモンストレーションとトレーニングを行う。 |
| 8.　9 | 木 | 午前中，二波長クロマトスキャナーのトレーニング。<br>午後，薬用植物野外調査の打合せ及び準備<br>夜行列車でチェンマイへ移動。 |
| 8. 10 | 金 | 午前，レンタカーの調達等野外調査の準備。<br>午後，Doi Pui 山へ薬用植物の調査及び採集。 |
| 8. 11 | 土 | 午前，Doi Pui 山の薬用植物調査及び採集。<br>午後，Doi Suthep 山へ移動。<br>夜，採集植物の整理，腊葉作製。 |
| 8. 12 | 日 | Doi Suthep 山の薬用植物調査，採集，腊葉作製。<br>Doi Inthanon 山へ移動。 |
| 8. 13 | 月 | Doi Inthanon山の薬用植物調査及び採集。採集品の一部を乾燥抽出用とする。腊葉作製。<br>Vichira Tara，Mae Klangで山岳民族の伝承医薬品についてアンケート調査を行う。 |
| 8. 14 | 火 | チェンマイ大学薬学部を訪問し，当大学のDr Siriwan．Dr．Suwanna及びチュラロンコン大学のDr．Mondhon，Dr．Rapepol，Dr．Ekarine らとタイ北部の薬用植物及び生薬について討論する。<br>チェンマイ大学薬草園視察。 |
| 8. 15 | 水 | 植物標本を整理し，採集薬用植物について討論。<br>腊葉作製。 |
| 8. 16 | 木 | 休　　日 |
| 8. 17 | 金 | Doi Mae Ho へ移動。 |

| 月　日 | 曜　日 | 内　　容 |
|---|---|---|
| | | 山岳民族の伝承医薬品についてアンケート調査。 |
| 8.'18 | 土 | Doi Mae Ho地域の薬用植物の調査及び採集。 |
| | | 伝承医薬品のアンケート調査。腊葉の作製。 |
| 8. 19 | 日 | チェンマイよりThatonへ移動。 |
| 8. 20 | 月 | ThatonよりChaing RaiまでKok川を舟で下りながら，水路から上陸 |
| 〃 | | し，ジャングル地帯の薬用植物調査をする。 |
| 8. 21 | 火 | 20日は夜営する。 |
| | | 午後3時頃Chaing Rai船着場へ到着。 |
| | | Chaing Raiの宿舎へ移動。 |
| 8. 22 | 水 | 採集植物の整理，採集植物の整理，採集薬用植物についてチュラロンコン |
| | | 大学カウンターパートと討論。 |
| | | 腊葉製作。 |
| 8. 23 | 木 | 午前，腊葉製作，成分抽出用植物の処理。 |
| | | 午後，休養。 |
| 8. 24 | 金 | 早朝にChaing Raiを発ちGolden Triangle地域の薬用植物調査後 |
| | | チェンマイへ移動。 |
| 8. 25 | 土 | 生薬を用いるタイ国の伝統的診療方法を行う病院（The Northern |
| | | Hospital of Old Traditional Medicine）を視察する。 |
| | | 院長Sintorn Chaichagan氏と討論，大部分の生薬は病院の所有する |
| | | 広大な薬草園でまかなっている。 |
| | | 腊葉，採集植物の整理等，明日バンコクへ帰る準備をする。 |
| 8. 26 | 日 | 飛行機でバンコクへ移動。 |
| | | 採集品及び資料等をタクシー及びカウンターパートの車で運搬する。 |
| 8. 27 | 月 | 二波長クロマトスキャナーのトレーニングを行う（午前中薬理の助教授1 |
| | | 名，午後，薬用植物学の助手2名）。 |
| | | 採集植物の処理は大学側で進行中。 |
| 8. 28 | 火 | 昨日の助手2名に対し，再度二波長クロマトスキャナーのトレーニングを |
| | | 行う。 |
| | | 採集植物の成分分析を行う、この分析では数名が常時立ち合い使用法を見 |
| | | 学する。 |
| 8. 29 | 水 | 昨日に引き続き2名の助手をトレーニングする。 |
| | | 採集した薬用植物の成分分析を行う。 |

| 月　日 | 曜　日 | 内　　容 |
|---|---|---|
| | | アンケート調査のデータ処理について，今後の方針をDr．Rapepol と討論する。 |
| 8．30 | 木 | 8：00 amより助手2名，助教授2名，インストラクター等に対し，二波長クロマトスキャナーについて最後の説明をする。<br>更にすべての携行機材の最終チェックをする。異常なし。<br>学部長主催の昼食会に出席，教授，助教授，助手等9名。<br>午後，JICA．大使館へ挨拶に行く。能代さん出張中で富本さんと高山一等書記官に業務遂行状況等を報告し，帰国の挨拶をする。 |
| 8．31 | 金 | TGにて帰国 |

戸　部　　博

| 月　日 | 曜　日 | 内　　容 |
|---|---|---|
| 8．1 | 水 | ○予定通り成田を12時45分（JL717便）出発し，現地時間16時55分バンコクに到着した。チュラロンコン大学薬学部長サイソン氏の出迎えを受けた。携行機材の通関手続後，機材は飛行場に残し，ナライホテルに宿泊。 |
| 8．2 | 木 | ○午前，JICA（能代氏），午後，大使館（高山氏）にあいさつ。<br>上記に要した時間以外は，チュラロンコン大学薬学部にて，スタッフにあいさつ，簡単なミーティングを行う。（エカリン・サイファー飛行場にて機材を受取る）。 |
| 8．3 | 金 | ○午前中，チュラロンコン大学薬学部スタッフとスケジュール・研究計画・将来計画などについて討論。午後，携行機材（TLCスキャナー）の設置準備。夕方，JICA河西所長を訪問あいさつ。 |
| 8．4 | 土 | ○（休　日）<br>チュラロンコン大学薬学部スタッフの案内で，ワット・プラカオなど市内観光。 |
| 8．5 | 日 | ○（休　日）<br>チュラロンコン大学薬学部スタッフの案内で，バンコク市郊外のフローティング・マーケットへ観光。 |
| 8．6 | 月 | ○午前中，チュラロンコン大学学長を訪問。JICA河西所長，能代氏，大使官高山一等書記官同席のもと，携行機材を贈呈。午後，TLCスキャナーの調整。 |

| 月　日 | 曜　日 | 内　　容 |
|---|---|---|
| 8.　7 | 火 | ○午前，チュラロンコン大学薬学部研究室において，「ＴＬＣスキャナーによる医薬品の定量・定性法について」，薬学部スタッフ・大学院学生に説明講演。午後，同所にて，ＴＬＣスキャナーの実際のトレーニング（約２０名）。 |
| 8.　8 | 水 | ○午前中，チュラロンコン大学理学部を訪問。植物学関係のスタッフと会い，タイ国における植物分類学事情などについて討論。<br>午後，薬学部において，ＴＬＣスキャナーのトレーニング（スタッフ，学生約５名）。 |
| 8.　9 | 木 | ○午前・午後，医薬植物資源調査の旅行準備。<br>夕方，１８時３０分，バンコク発，チェンマイへ向けて出発（夜行列車） |
| 8. 10 | 金 | ○朝７時４０分，チェンマイ市到着。小型乗合トラックをチャーターし，Ｄｏｉ　Ｐｕｉ（プイ山）へ向けて出発。若干の植物採集後，カセテート大学ロッジへ宿泊（樋口・戸部・エカリン・モントーン・ラピポン）。 |
| 8. 11 | 土 | ○午前中，Ｄｏｉ　Ｐｕｉにて植物採集。<br>午後早くＤｏｉ　Ｓｕｔｈｅｐ（ステープ山）へ移動，植物調査（約３時間）。<br>Ｄｏｉ　Ｓｕｔｈｅｐ国立公園内に宿泊。 |
| 8. 12 | 日 | ○午前中，チェンマイ市に戻り，植物試料整理。<br>午後，Ｄｏｉ　Ｉｎｔｈａｎｏｎｔ（インタノン山）へ出発，山頂に宿泊。<br>夕方，小雨。 |
| 8. 13 | 月 | ○Ｄｏｉ　Ｉｕｔｈａｎｏｎｔで，植物採集（主にミカン科，メリア科など）。<br>午後，チェンマイ市に戻り植物試料整理。チェンマイ市泊。 |
| 8. 14 | 火 | ○チェンマイ大学薬学部訪問（午後２時から）。午前中，市内観光。 |
| 8. 15 | 水 | ○午前中，植物試料整理。帰国準備。<br>午後，２：００チェンマイ空港発バンコクへ夕方着（飛行便のつごうで途中３，４の小都市寄港）。バンコク泊。試料は分析のため大学へ残す。 |
| 8. 16 | 木 | ○朝１０時３０分，バンコク空港発，予定通り夕方１８時２５分成田空港へ到着。 |

河　野　俊　彦

| 月　日 | 曜　日 | 内　　容 |
|---|---|---|
| 8.　1 | 水 | 出国，成田発　１２：４５（ＪＡＬ７１７）<br>Ｂａｎｇｋｏｋ到着１６：３０ |

| 月 | 日 | 曜日 | 内容 |
|---|---|---|---|
| 8. | 1 | 水 | TLC Scannerその他携行機材の通関手続をすませる。<br>出迎え：能代氏，高橋氏（JICA）<br>Saisorn，Saifah（Chulalongkorn Univ）<br>Narai Hotelに投宿。 |
| 8. | 2 | 木 | 10：00 JICAバンコック事務所にあいさつ（所長不在）。<br>11：00 チュラロンコン大学薬学部へ。<br>学部長室にてミーティング。<br>午後，ミーティングの後，日本大使館を訪れ，高山書記官にあいさつ（16：00） |
| 8. | 3 | 金 | 午前中，薬学部にて討論会（Meeting on Plans）<br>出席者：P.Tongroach，P.Dhumma-Upkorn，<br>R.Bavovadaa，M.Sanguansermsri，<br>P.Pramyothin，E.Saifah，<br>樋口，戸部，河野<br>今回の日程，業務内容について，将来の研究，協力について，活発な討論をする。<br>午後，TLC Scanner等の梱包を解き，設定し，器機の作動することを確認する。<br>16：30 JICAへ。河西所長にあいさつ。同時に将来の研究，協力についてチュラ大の希望を説明する。 |
| 8. | 4 | 土 | チュラロンコン大学の案内で観光。<br>王宮，エメラルド寺院，市場（果実市，植木市等）見学。 |
| 8. | 5 | 日 | チュラロンコン大学の案内で観光<br>水上マーケット（Dhammernsaduak），ナコンパトン。 |
| 8. | 6 | 月 | TLC Scanner他携行器機の贈呈式。<br>チュラ大本部会議室にて<br>学長，河西所長，能代氏，高山書記官出席。<br>午後，薬学部の研究室の視察。 |
| 8. | 7 | 火 | 午前中，医学部訪問。<br>医学部長あいさつ。気管支鏡検査の様子を見学。病理組織の採取と組織検査法について担当医と意見交換する。<br>午後，TLC Scannerの調整作業。 |

| 月　日 | 曜　日 | 内　　容 |
|---|---|---|
| | | 夕方，チェンマイ地方の植生の予備調査に出発（Mondhon Sanguansermsri 同行）。 |
| 8. 8 | 水 | チェンマイ大学周辺，およびワット・ドイ・スティープ周辺の植物相の観察 |
| 8. 9 | 木 | 午前中，チェンマイよりバンコク帰着。<br>Narai ホテルにて樋口，戸部，チュラ大学のメンバーと会う。<br>樋口氏ら5名は，チェンマイ方面の薬用植物調査に出発。<br>帰国準備。 |
| 8. 10 | 金 | Narai Hotel　チェックアウト（8：00）<br>帰国　バンコク空港発10：30（TG740）<br>見送：Saisorn 薬学部長<br>成田着　18：25 |

国　　名　タ　イ
指導項目　医動物学
　　衛生昆虫学
派遣先機関　保健省
専門家名　高田　季久
　　和田　義人
赴任時現職　大阪市立大学医学部教授（医動物学教室）
　　国立予防衛生研究所衛生昆虫部部長
派遣期間　1984.8.19～8.25

# 業　務　報　告　書

昭和59年8月20日～24日にタイ国において開催された東南アジア医療情報センター（SEAMIC）第12回ワークショップ（マラリアに関する第1回ワークショップ）に，佐々　学，高田季久，和田義人の3名がJICA専門家として出席した。このワークショップにはインドネシア，フィリッピン，シンガポール，日本，タイからの参加者のほかにJICA，WHOその他から専門家も出席し討議が行われた。

8月20日には，開会式の後SEAMICの情報交換プログラムについての説明があり，引き続き各国からマラリアの現況についての発表があった。最後にマラリアの化学療法についての特別講演が行われた。

8月21日には，各国マラリア対策プログラムにおける問題点についての発表があった。次いでマラリア媒介蚊についてのセッションでは日本の情況につき和田が発表した。その後マラリア対策に関連する基礎的及び応用的研究の成果が8題発表され，和田の日本の水田の蚊の殺虫剤抵抗性についての発表はここで行われた。

8月22日には，各国のマラリア対策プログラムとprimary health careとの関係の今後についての討議が行われた。次いでSEAMICの役割とWHO，JICA，TROPMED，ASEAN等との関連について討議され，JICAの活動につき佐々及び高田が発言した。引き続きマラリアに関する知識を増大させるための研修コース，各種の会合，科学専門誌の刊行，情報サービス等のあり方について討議された。

8月23日には，バンコック北方のマラリア流行地，Pakchong Malaria Zone Office及びPrabuthabaht Malaria Regional Centerの視察旅行が行われた。

8月24日には，討議の後マラリア対策に必要な研究，情報交換と協力，及びマラリア対策プログラム成功のためのPrimary Health Careの強化に関する勧告がなされ，全日程を終了した。

このワークショップにおいては終始活発な討議がなされ，マラリア対策は極めて重要であろうが前途は容易なものではないことが改めて浮きぼりにされた。また東南アジア諸国はマラリア対策の面で日本に期待するところが大きいことも痛感させられた。ワークショップの詳細についてはSEAMICにより印刷発表される予定である。

## 業務日誌

| 月　日 | 曜　日 | 内　容 |
|---|---|---|
| 8. 19 | 日 | 東京発　バンコック着 |
| 8. 20 | 月 | マラリアに関するSEAMICワークショップ出席 |
| 8. 21 | 火 | 〃 |
| 8. 22 | 水 | 〃 |
| 8. 23 | 木 | 〃 |
| 8. 24 | 金 | 〃 |
| 8. 25 | 土 | バンコック発　東京帰着 |

国　　名　タ　イ

指導科目　1.寄生虫学 / 2.脳神経外科 / 3.口腔外科

派遣先機関　チュラロンコン大学

専門家名　1.佐々　学 / 2.高久　晃 / 3.古田　勲

赴任時現職　1.富山医科薬科大学学長 / 2.富山医科薬科大学脳神経外科学教授 / 3.富山医科薬科大学歯科口腔外科教授

派遣期間　1.　1984.8.19～8.30

2.3.　1984.8.26～9.　2

# 業　務　報　告　書

1. 第1回シーミック・マラリアワークショップ（First SEAMIC Workshop on Malaria）－（この概要は別に佐々，和田，高田連名で報告）

期　間：1984年8月20日より24日まで

参加者：SEMICの招へいによる，日本，インドネシア，マレイシア，フィリピン，タイ国の代表各3名，シンガポール代表2名，およびJICAの派遣による佐々　学，高田季久，和田義人の3名，ほかタイ国熱帯医学校，厚生省マラリア対策局関係者，およびWHO－SEAROよりDavid F Clyde，WHO－WPROよりT.Matsushima氏（詳細は別紙参加者名簿通り）

日　程：

8月20日(月)　9：00　開会式

タイ国厚生大臣H.E.Marut Bunnag氏あいさつ

大橋氏　基調演説

各国代表の各国マラリア現状報告

Khunying Tranakchit Harinasuta教授のマラリア化学療法に関する特別講演

8月21日(火)　午前　マラリアの予防法と媒介蚊に関するパネルディスカッション

午後　マラリアに関する研究発表

8月22日(水)　午前　マラリア予防とプライマリヘルスケアーの関連についてのパネルディスカッション，およびSEAMICとWHO，TROPMED 等との協力についての討議

午後　マラリアに関する研修，研究，情報サービス等の促進に関する討議

8月23日(木)　PakchongおよびPrabuthabahtのマラリア対策実施状況およびマラリア技術者研修センターの視察

８月２４日(金)　今回のワークショップの総括および討議の採択

以上のワークショップに関する所感等については，別紙和田義人，高田季久氏と共同で業務報告を提出しました。

（別紙資料添）

## FIRST SEAMIC WORKSHOP ON MALARIA :

## PROBLEMS OF MALARIA IN SEAMIC COUNTRIES

Bangkok, 20th-24th August 1984

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### Tentative Programme

**Monday, 20th August 1984**

| | |
|---|---|
| 8.30 - 9.00 | - Registration |
| 9.00 - 9.20 | - Opening Ceremony |
| 9.20 - 9.45 | - Refreshment |
| 9.45 - 10.00 | - Keynote Address: Data-Exchange Programme by Dr. M. Ohashi |
| 10.00 - 10.45 | - Current status of malaria in Indonesia by Director of Malaria Division, Indonesia |
| 10.45 - 11.30 | - Current status of malaria in Malaysia by Director of Malaria Division, Malaysia |
| 11.30 - 12.15 | - Current status of malaria in the Philippines, by Director of Malaria Division, Philippines |
| 12.15 - 13.30 | - Lunch |
| 13.30 - 13.50 | - Current status of malaria in Singapore by Representative from Singapore. |
| 13.50 - 14.10 | - Current status of malaria in Japan by Representative from Japan |
| 14.10 - 15.00 | - Current status of malaria in Thailand by Director of Malaria Division, Thailand. |
| 15.00 - 15.15 | - Coffee |
| 15.15 - 16.30 | - Special Lecture: Chemotherapy and management of malaria in general, and in severe and cerebral malaria (including drug resistance falciparum malaria) by Professor Khunying Tranakchit Harinasuta. |

Tuesday 21st August 1984

| | |
|---|---|
| 9.00 - 10.45 | - Panel Discussion: Problems in the Malaria Control Programme.<br><br>Panelists: Directors of the Malaria Divisions of the SEAMIC Countries. |
| 10.45 - 11.00 | - Coffee |
| 11.00 - 12.30 | - Group Presentation: Anopheles malaria vectors in Southeast Asia: Biology and bionomics genetic variations, sensitivity to insecticides, etc., by Entomologists from the SEAMIC Countries. |
| 12.30 - 13.30 | - Lunch |
| 13.30 - 15.00 | - Free papers: Basic and applied research to support the malaria control measures, to be presented by participants from the SEAMIC countries and invited scientists, e.g.<br><br>- Chemotherapy of malaria in children.<br><br>- Social and economic research on various aspects of malaria towards successful control measures of malaria.<br><br>- Mechanism of drug resistance of falciparum malaria. |
| 15.00 - 15.15 | - Coffee |
| 15.15 - 16.30 | - Free papers: Basic and applied research to support the malaria control measures (continued). |

Wednesday 22nd August 1984

| | |
|---|---|
| 9.00 - 10.45 | - Panel Discussion: Future prospect of the malaria control programme with special reference to primary health care.<br><br>Panelists : M.Ds from the SEAMIC countries who are in connection with primary health care for malaria control. |
| 10.45 - 11.00 | - Coffee |

| | |
|---|---|
| 11 00 - 12.30 | - Group Presentation: Possible role of SEAMIC and SEAMIC's collaboration with WHO and other relevant regional organizations, by representatives from Japan, SEAMIC, WHO, TROPMED and ASEAN. |
| 12.30 - 13.30 | - Lunch |
| 13.30 - 15.00 | - Proposals for Discussion: Mechanism for getting further advanced knowledge on malaria through :- (1) course training, (2) seminar and conference (3) technical meeting, ( (4) publication of documents manuscripts, scientific journals etc., (5) information services, (6) dissemination of information, etc. by representatives from the SEAMIC countries , WHO TROPMED and ASEAN. |
| 15.00 - 15.15 | - Coffee |
| 15.15 - 16.30 | - Proposals for Discussion (continued) |

Thursday, 23rd August 1984

| | |
|---|---|
| 8.00 - 17.00 | - Field Visit |

- From Bangkok to Pakchong Malaria Zone Office ($2\frac{1}{2}$ hr. drive) to observe the malaria field operation.

- Lunch

- From Pakchong to Prabuthabaht Malaria Regional Centre, Saraburi Province (2 hr. drive), to observe malaria course training, malaria in-service training, refresher courses for microscopists, sector chief courses on malariology, etc., and the Malaria Clinic at Regional Level (malaria out-patients)

- From Prabuthabaht to Bangkok (140 km.)

Friday, 24th August 1984

| | |
|---|---|
| 9.00 - 10.45 | - Group Discussion: Each group of 10 persons<br>Group 1: Research requirement towards control of malaria<br>Group 2: Information on exchange and collaboration<br>Group 3: Strengthening Primary Health Care elements for the success of the Malaria Control Programme.<br>Guidelines will be supplied to each group for discussion and recommendation. |
| 10.45 - 11.00 | - Coffee |
| 11.00 - 12.00 | - Recommendations from 3 Discussion Groups |
| 12.00 - 12.30 | - Closing Remarks<br>- Closing Ceremony |
| 12.30 - 14.00 | - Farewell Lunch. |

FIRST SEAMIC WORKSHOP ON MALARIA

PROBLEMS OF MALARIA IN SEAMIC COUNTRIES

Field Trip Thursday 23 August 1984.

| | |
|---|---|
| 8.00 - 10.00 | - Travel to Pakchong District (Bus leaves from R.S.H.O at 8.00 a.m.) |
| 10.30 - 11.00 | - Malaria Situation and organization of Malaria Region I (Dr. Somthas Malikul) |
| 11.00 - 11.30 | - Observe unit activities<br>- Case detection : equipment & supplies<br>- Vector control : equipment & supplies<br>- Malaria Clinic<br>- Drugs |
| 11.30 - 12.00 | - Travel to Muang Lek District |
| 12.00 - 13.00 | - Lunch |
| 13.30 - 14.00 | - Visit Malaria Village Volunteers |
| 14.00 | - Travel to Prabuddhabat District |
| 15.00 | - Visit Malaria Training Centre-Prabuddhabat |
| 15.00 | - Briefing on Malaria Training Centre<br>- Refreshment |
| 18.00 | - Depart for Bangkok |
| 19.30 | - Dinner at Chinese Restuarant "Kang Chium Too", Rang Sit |
| 21.00 | - Arrive in Bangkok. |

Revised I

1st SEAMIC Workshop on Malaria

List of Participants, Experts and Resource Persons

Bangkok, August 20th - 24th, 1984.

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Indonesia

1. Dr. Nyoman Kumara Rai
   Chief
   Malaria Control Programme
   Directorate of Communicable Diseases Control
   Ministry of Health
   Jl. Percetakan Negara 29
   Jakarta, Indonesia.

2. Dr. P.R. Arbani
   Malaria Control Programme
   Directorate of Communicable Diseases Control
   Ministry of Health
   Jl. Percetakan Negara 29
   Jakarta, Indonesia.

3. Dr. Santiyo Kirnowardoyo
   Entomologist
   Communicable Diseases Control and
   Environmental Health Directorate General
   Jl. Percetakan Negara 29
   Jakarta, Indonesia.

Japan

1. Dr. Toshio Nakabayashi
   Professor
   Research Institute for Microbial Diseases
   Osaka University
   Suita Osaka, Japan.

2. Dr. Hideko Mutoh
   Tecnical Official
   Ministry of Health and Welfare
   Kasumigaseki 1-2-2
   Chiyodaku
   Tokyo, Japan.

3. Dr. Hiroshi Ohtomo
   Professor
   Department of Parasitology
   Gifu University
   Tsukusa-cho, Gifu
   Japan.

Malaysia

1. Dr. Jit Singh
   Epidemiologist
   Vector Borne Diseases Control Programme
   Jalan Cenderasari
   Kuala Lumpur, Malaysia.

2. Dr. Jeffrey Hii
   Entomologist
   Vector-Borne Diseases Control Programme
   Department of Medical Services
   P.O. Box 1290
   Kota Kinabalu
   Sabah, Malaysia.

3. Dr. Abdulrazak Haji Kechik
   Senior Health Officer
   Vector-Borne Diseases Control Programme
   Jalan Mahmood, Kota Bharu
   Kelantan, Malaysia.

Philippines

1. Dr. Crispin P. Echiverri
   Officer In-Charge, 1
   Malaria Eradication Service
   Ministry of Health
   Manila, Philippines.

2. Mr. Felipe P. Catangui
   Entomology Adviser
   Malaria Eradication Service
   Ministry of Health
   Manila, Philippines.

3. Mr. Gustavon S. Onias
   Senior Planning Officer
   Regional Health Office I
   San Fernando, LA Union
   Philippines.

Singapore

1. Dr. Goh Kee Tai
   Head
   Quarantine & Epidemiology Department
   Princess House
   Alexandra Road
   Singapore 0315.

2. Mr. Ng Say Kiat
   Head
   Vector Control & Research Department
   Ministry of the Environment
   5th Floor, Princess House
   Alexandra Road
   Singapore 0315.

Thailand

1. Dr. Udom Chitprarop
   Director
   Malaria Center Chiang Mai
   Chiang Mai 50000, Thailand.

2. Dr. Somthas Malikul
   Director
   Regional Malaria Center No. 1
   Phra Phuttabat, Saraburi Province
   Thailand.

3. Dr. Chusak Prasittisuk
   Chief
   Applied Research Branch
   Malaria Division
   Department of Communicable Disease Control
   Ministry of Public Health
   Bangkok, Thailand.

World Health Organization

1. Dr. David F. Clyde
   W.H.O. Senior Public Health Administrator
   W.H.O. Regional Office for South East Asia
   New Delhi - 110 002, India.

2. Dr. Tatsuo Matsushima
   W.H.O. Regional Malaria Adviser
   W.H.O. Regional Office for Western Pacific
   P.O. Box 2932
   Manila, Philippines.

SEAMIC

1. Mr. Arao Ohta
   Executive Director
   International Medical Foundation of Japan/SEAMIC
   Tokyo Kaiji Bldg. No. 6
   7-2 Shimbashi 4-chome
   Minato-ku, Tokyo, Japan.

2. Hideyuki Miyasaka
   Investigator
   SEAMIC Secretariat
   7-2 Shimbashi 4-chome
   Minato-ku
   Tokyo, Japan.

3. Mr. Yoshio Amano
   Coordinator
   SEAMIC Committee on Health Documentation and Publication
   7-2 Shimbashi 4-chome
   Minato-ku
   Tokyo, Japan.

Experts and Resource Persons

Japan

1. Dr. Manabu Sasa
   President
   Toyama Medical and Pharmaceutical University
   Sugitani, Toyama-shi 930-01
   Japan.

2. Dr. Makoto Ohashi
   Director
   Department of Microbiology
   Tokyo Metropolitan Research Laboratory of Public Health

3. Dr. Yoshito Wada
   Director
   Department of Medical Entomology
   National Institute of Health
   2-10-35, Kamiosaki
   Shinagawa-ku, Tokyo, Japan.

4. Dr. Suehisa Takada
   Professor of Medical Zoology
   Osaka City University, Medical School
   1-4-54 Abeno-ku
   Osaka 545, Japan.

Experts and Resource Persons

Thailand

1. Dr. Suwan Wongsarojana
   Deputy Permanent Secretary
   Ministry of Public Health
   Baongkok, Thailand.

2. Dr. Chamlong Harinasuta
   Consultant of the Faculty of Tropical Medicine and
   Coordinator, SEAMEO-TROPMED Project
   420/6 Rajvithi Road, Bangkok 10400, Thailand.

3. Prof. Khunying Tranakchit Harinasuta
   Consultant of the Faculty of Tropical Medicine
   420/6 Rajvithi Road, Bangkok 10400, Thailand.

4. Dr. Santasiri Sornmani
   Dean, Faculty of Tropical Medicine
   Mahidol University
   420/6 Rajvithi Road, Bangkok 10400, Thailand.

5. Dr. Pricha Desawadi
   Chief Medical Officer
   Permanent Office for Public Health
   Ministry of Public Health
   Bangkok, Thailand.

6. Dr. Tan Chongsuphajaisiddhi
   Professor and Head Department of Tropical Pediatrics
   Faculty of Tropical Medicine, Mahidol University
   420/6 Rajvithi Road, Bangkok 10400, Thailand.

7. Dr. Supat Sucharit
   Head Department of Medical Entomology
   Faculty of Tropical Medicine, Mahidol University
   420/6 Rajvithi Road, Bangkok 10400, Thailand.

8. Dr. Visut Baimai
   Head Department of Biology
   Faculty of Science, Mahidol University
   Rama VI Road, Bangkok 10400, Thailand.

9. Dr. Horace K. Webster
   Chief, Immunology and Biochemistry
   USAMC, AFRIMS
   Rajvithi Road, Bangkok 10400, Thailand.

10. Dr. Chariya Brockelman
Associate Professor
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Observers

1. Dr. Ineo Suzuki
Medical Attache
Japanese Embassy
Bangkok, Thailand.

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Recommendations(Draft)

1. Each SEAMIC country will provide SEAMIC-Tokyo with its own latest malaria-related information for periodical publications through the SEAMIC News Letter.
2. SEAMIC-Tokyo should continue to organize workshops with due intervals on malaria problems. Seminars on simple and field-applicable techniques of drug sensitivity will also be considered.
3. Each SEAMIC Coordianting Committee is urged to expedite setting up a subcommittee (Ref. SEAMIC Conference 1980 Recommendation) on infectious diseases which is intersectoral and corresponds to that of SEAMIC-Tokyo, and thereto an expert group on malaria is encouraged to be formed in order to make a follow-up of SEAMIC's malaria-related activities.
4. In translating SEAMIC's malaria-related activities into implementation, a full collaboration between SEAMIC and JICA should be maintained.
5. Arrangements should be made between SEAMIC and WHO conducting malaria-related seminars or technical meetings so that they may have interactive effect.
6. In line with the spirit of the above-stated collaboration between SEAMIC and WHO, similar efforts should be made between SEAMIC and ASEAN.
7. In view of the success of this joint workshop organized by SEAMIC and SEAMEO-TROPMED, with the full cooperaton of the Ministry of Public Health, Thailand, similar programs with other interantional organizations, such as the IDRC, should also be encouraged.

Remarks: The above draft was agreed upon subject to brushing up some wordings. Formal one will be included in the proceedings.

## 業務日誌

佐々　学

| 月　日 | 曜　日 | 内　容 |
|---|---|---|
| 8. 17 | 金 | 富山発　東京着（全日空762便） |
| 8. 19 | 日 | 成田発　11.15　CX501便 |
| | | バンコク着16.55　RS Hotel泊 |
| 8. 20 | 月 | SEAMIC マラリアセミナー出席（Faculty of Tropical Medicine） |
| 8. 21 | 火 | 同　上 |
| 8. 22 | 水 | 同　上 |
| 8. 23 | 木 | マラリア予防対策実施状況視察のフィールドトリップ参加 |
| | | Pak-ChongおよびPhra Phuttabatのマラリア対策視察 |
| 8. 23 | 金 | マラリアセミナー出席。閉会 |
| 8. 24 | 土 | RS HotelよりBangkok Palace Hotelに移動 |
| 8. 26 | 日 | 高久，古田，後藤専門家，東京よりバンコクに到着。打合せ。 |
| 8. 27 | 月 | 10.00　日本大使館，表敬訪問及び打合せ |
| | | 14.00　Chulalongkorn病院にDr.Charasおよび脳外科スタッフ訪問。奇病（Frontoethmoidal Meningoencephalocele）の症状，治療法の現況などの説明を受く。 |
| 8. 28 | 火 | 9.00　Chulalongkorn医学部長Yajai Nasongkla氏表敬訪問。 |
| | | 10.00−14.00　Chulalongkorn病院脳外科教室において奇病調査研究に関する打合せ。 |
| 8. 29 | 水 | 9.00　Faculty of Tropical MedicineおよびFaculty of Dentistry Mahidol University視察。 |
| | | 12.00−14.30　Charas副学長らと最終打合せ |
| | | 16.00−18.00　タイ国王妃接見のため王宮訪問 |
| | | 17.00−17.30　王妃接見橘大使，高久，古田，後藤各専門家） |
| | | 19.00　日本大使公邸にて橘大使，渡辺公使と最終打合せ |
| 8. 30 | 木 | 10.30　バンコク発，タイ航空740便にて出発，帰国 |

## 調 査 団 日 程　　高久 晃，古田 勲

8月26日
8月29日　（学長報告済）

8月30日(木)　佐々学長帰国（TG740，10.30）
高久，古田およびJICAの後藤3名は早朝よりタイ国東南部地方都市チャンタブリ地区のPrapokklao Hospitalを訪問，医療状況を視察，引き続き同Hospital主催の夕食会にて意見の交換を行う。チャンタブリ泊

8月31日(金)　チャンタブリより午後バンコックにもどる。日本大使館の高山一等書記官をまじえ，最終的協議を行う。

9月　1日(土)　資料整理

9月　2日(日)　高久，古田，後藤3名帰国（TG740，10:30）

国　　名　タ　イ
指導科目　タイ国における奇病調査
派遣先機関
専門家名　佐々　学／高久　晃／古田　勲
赴任時現職
派遣期間

# 業　務　報　告　書

## タイ国における奇病実態調査

本件調査隊は昭和５９年８月２７日から９月１日にかけて，タイ国に特に多発する前頭部節骨洞部脳瘤についてその実態調査を行ない国際医療協力の可能性について検討した。

即ち，調査の方法は，シリキット王妃との謁見を含む，チェラロンコン大学スワンベラ副学長及び同大学病院脳神経外科関係者との協議並びに関係医療施設の視察であり，調査結果の概要は以下の通りである。

1. 奇病の現状

本疾患は脳が前頭部及び顔面に飛び出す先天奇形の一種であり，世界全体では出生約３万５千人に１人の稀なる病気であるが，タイ国では５千人に１人の頻度で発生している。タイ国以外では，マレイシア，ビルマ，インドネシア等，東南アジアにおいても高い頻度で発生しているとされている。その分布はタイ国全域に及んでおり，タイ国全体で，現在，推定１0,000人の脳瘤患者がいると考えられ，又，毎年２００人の本疾患が新たに発生しているとされている。尚，関係者の言によれば，経済的に貧困なタイ国人に多くみられ，中国系人種での頻度は低いとの事である。

2. 奇病の研究，診療体制

奇病の予後

チュラロンコン大学病院はタイ赤十字の資金によって運営されており，脳外科の規模は３７床である。奇病の研究はスワンベラ副学長を中心として５人の脳外科医が，臨床に従事しながら悪条件下にこの疾患の研究を続けているが，特別に研究費は計上されていない。尚，本奇病にかかる年間手術料は１２～３件であり，スワンベラ氏個人の手術症例は現在迄２５０例程度である。尚，彼自身の手術例１２０例における患者の転帰は１２０例中生存１０６例，死亡14例，生存１０６例中，正常な発育は約４０例との事である。又，治療上の問題としては，特に顔面異形に対する形成外科の導入が力説されている。

尚，疫学的・遺伝学的な研究はほとんどなく，その重要性が痛感される。

3. タイ国地方都市病院における本疾患治療の状況

タイ国東南部の地方都市チャレタブリ地区のPrapokklao Hospitalを中心にその医療状況を視察した。

病床数650，チェラロンコン大学の学生教育をになう関連病院であるが，その医療設備は，CT等もなく，又，各科別の病床もなく，各科患者が混り合って入院しており，日本における地方都市病院に比べかなりの遅れがある事が認識された。

この病院の脳神経外科における脳瘤の手術例は，年間12例程であり，日常臨床においては，頭部外傷を中心とした診療で混雑かつ多忙をきわめ，医師および設備等の不足とあわせ脳腫瘍，脳血管障害等，その他の脳神経外科臨床が不十分となりやすい。とりわけ，タイに頻発，極めて手術的に困難の多い疾患である脳瘤治療は，後まわしにされやすく患者は，ひさんな状況におかれているといえる。

4. 我が国に対する協力要請の内容

チュラロンコン大学脳神経外科スタッフとの話し合いより，先方では，大別して，脳瘤の病因調査，診断・治療及び巡回診療の4つの協力を要望している。最初の疫学的調査は日本側専門家とタイ側研究者による遺伝学，疫学及び奇形学の分野における共同研究調査を望んでいる。次に，診断及び治療についてはチュラロンコン大学病院における協力ということで超音波診断装置，手術用レーザー装置，CTスキャナー，X線装置という機械供与を望んでいる。

最後の巡回診療は，前述の三点と相互に密接に関連するものであり，地方における詳細な脳瘤の実態調査という研究的側面と地方における脳外科を中心とする診療及び地方医師への教育という観点から，日本側の専門家の派遣並びに巡回診療車（外科手術器具搭載）といった機械供与，更に本プログラム運営のためのローカルコストの負担を要望している。

5. チーム所感

今回は，実態調査という観点から奇病の現状及びタイ側の要望する協力の内容を聴取することを主眼として調査にあたったが，先に述べた如く王妃陛下からも本件に関する協力要請が行われたこともあり，今年度あるいは来年度早々にスランペラ副学長を含む3人程，タイ側，関係者を研修員として1週間程，来日せしめ，今後の協力計画を策定することが適切と考えられる。

日本側で協力計画を策定，日本側各専門家の分野の研究内容及び機械の選定等の明確化にあたって，タイ側関係者に日本の医療事情を視察せしめることが重要であると考えるからである。

国　　名　タ　イ
指導項目　第三国研修（皮膚病コース）
派遣先機関　タイ国立皮膚病研究所
専門家名　鈴木　啓之
赴任時現職　日本大学医学部皮膚科助教授
派遣期間　1984.6.11～6.23

# 業　務　報　告　書

1）講　演

＜題目＞

① Fundamentals of cell biology in electron microscopy
② Ultrastructure of epidermis
③ Ultrastructure of appendages
④ Ultrastructure of dermis
⑤ Cutaneous innervation
⑥ Melanin and melanization
⑦ Pigmentary disorders

＜概要＞

① 電顕レベルの細胞生物学。とくに細胞小器管（コルジ装置，粗面小胞体，リボソーム，ライソソーム，ミトコンドリア等）の構造と機能
② 表皮構成細胞の概説。次いで，電顕レベルでの表皮角化の特異性。
③ 毛・毛包，汗腺（エクリン汗腺，アポクリン汗腺），脂腺，爪の構造と機能を電顕所見を含めて概説。
④ 線維成分，細胞成分，血管，リンパ管，無定形基質などの微細構造と機能。
⑤ 感覚受容器（マイスネル小体，毛盤など），知覚神経，自律神経などの微細構造と機能
⑥ メラノサイトの微細構造，メラニン産生過程，メラニン・トランスファーなど。
⑦ 色素異常性皮膚疾患。色素脱失症（先天性，後天性とも）と色素沈着症（先天性，後天性とも）の病態，鑑別診断，治療など。

＜対象者の水準＞

電顕生物学，病理学に関しては初心者。ただし勉学意欲は旺盛。

＜人数＞

正規の人は14人（タイ7，バングラディシュ2，ネパール，フィリピン，インドネシア，中国，パキスタン各1）

その他，聴講者１０人前後。

＜反応＞

休けい時間に活発な質問あり。

＜携行機材＞

レザーポインター（寄贈先　Institute of Dermatology）

講義にはきわめて有用。

＜受入国医療水準など＞

タイのInstitute of Dermatologyは職員約２００人をかかえる６階建のビルで，患者は１日５００人を越す。これは世界でも有数の規模である。熱帯皮膚病の症例と経験は豊富。ただし，研究面とくにBasic scienceの面はほとんど手がつけられていないように思われるので，この方面への技術援助，技術指導は必要と思われる。

＜所感，提言＞

(1) 継続することが大事と思われます。

(2) 今年はじめて参加し，暗中模索でスタートしましたが，２－３回の講義で，参加者が何を求めているのかがよくわかってきました。それ故，次回はそれに沿った講義内容，スライド，テキスト等が準備できると思います。それ故，参加者は毎年変ることでもありますので，講師陣のメンバーはある程度fixした方がよいように思います。

＜タイ・バンコク郊外で多発せる児童の下腿潰瘍について＞

バンコク郊外（チョブリ等）の小学校児童の７０％以上に指頭大～鶏卵大の円形～類円形湿潤性潰瘍が多発している。

この潰瘍の原因が不明のため，その原因解明の要請がInstitute of Dermatologyに求められている。この件に関し，私も所長のDr.Renooの援助要請にこたえて，

1）病巣皮フ生検材料の電子顕微鏡による検索

2）病巣から培養された細菌の菌学的検討と感受性テスト

の２点を日本へ帰ってから行う約束を交わし，現在検討中である。

目下の段階では途中報告であるがCorynebacterium Pyogenicumの感染症である可能性が考えられる。検討の結果のデータ如何によっては再度現地へ赴き意見交換，討論の必要性，また新たな試料採取の必要性も生じる可能性も大である。

本件は日・タイ間の医療協力の視点からも大事な案件とも思われ，国際協力事業団の援助を期待（熱望）したい。

## 業務日誌

| 月・日 | 曜日 | 内容 |
|---|---|---|
| 6. 11 | 月 | JL471便にてバンコク到着。<br>JICA Mr.Ohashiの出迎えをうける。<br>Narai Hotel泊。 |
| 6. 12 | 火 | 7.00am Narai Hotel発。Mr.Ohashiの案内で，日本大使館へ出向く。 7.45am<br>JICA河西所長，川上氏，日本大使館高山氏（一等書記官）と打ち合せ。<br>次いでInstitute of Dermatologyへ行きDr.Renooにあいさつ。<br>1:00pm～3:00pm<br>Institute of Dermatologyにて講義。<br>"Fundamentals of cell biology, Part I" |
| 6. 13 | 水 | 1:00pm～3:00pm<br>Institute of Dermatologyにて講義<br>"Fundamentals of cell biology, Part II" |
| 6. 14 | 木 | 1:00pm～3:00pm<br>Institute of Dermatologyにて講義。<br>"Ultrastructure of epidermis, Part I" |
| 6. 18 | 月 | 6:00am～2:30pm<br>Cholburi地区にて多発せる児童の下腿潰瘍原因解明のため皮膚生検を含む診療に赴く。<br>2:20pm～4:30pm<br>講義，"Ultrastructure of epidermis, Part II" |
| 6. 19 | 火 | 1:00pm～3:00pm<br>Institute of Dermatologyで講義<br>"Ultrastructure of appendages" |
| 6. 20 | 水 | 1:00pm～3:00pm<br>Institute of Dermatologyで講義<br>"Ultrastructure of dermis and cutaneous innervation" |
| 6. 21 | 木 | 1:00pm～3:00pm<br>Institute of Dermatologyで講義。<br>"Melanin, melaniation and pigmentary disorders" |
| 6. 22 | 金 | 6:00am～8:00pm |

| 月　日 | 曜　日 | 内　　容 |
|---|---|---|
| 6. 23 | 土 | Cholubri 近郊へ，児童の下腿に集団発生せる潰瘍と電顕的検索の技術指導のため出張。<br>11：10 am，JL466にて帰国。<br>成田着　7：30 pm |

国　　名　　タ　イ
指導科目　　第三国研修（皮膚病コース）
派遣先機関　　タイ国立皮膚病研究所
専門家名　　田上　八朗
赴任時現職　　東北大学医学部皮膚科教授
派遣期間　　1984.7.22～8.6

# 業　務　報　告　書

1）講　演

i）腫瘍免疫……疣贅を中心に，細胞性免疫の抗腫瘍作用を話す。とくに自分の発見した多発性扁平疣贅の消退機序につき詳述した。

ii）角層の防御機構……その測定方法と重要性について述べた。

iii）角層の水分保持能……私の開発した装置をもちいての研究内容を中心に，柔軟性と病的角層の機能について述べた。

iv）炎症に関与する化学伝達物質……皮膚疾患をモデルに最近の知見を述べた。

v）乾癬の発症機序……最近の自分の研究成果を中心として免疫，炎症の面から述べた。

vi）無菌性膿疱症……自分の研究成果をもとに概要を話した。

vii）微生物による膿疱症……白血球走比性因子，白血球細胞膜レセプターについて感染症をもとに話した。

viii）湿疹性病変……そのなりたちととくに最近の研究データをもとにランゲルハンス細胞の動きを述べた。

ix）局所ステロイドの作用機能……自分の研究成果を中心に概要を述べた。

2）技術指導

a）風土病の下腿潰瘍の病因解明のため原因菌に対する生体側の免疫状態，病変の免疫組的検索法なども指導し，検索をおこない，免疫反応の関係を示唆するデーターをえた。

b）角層水分保持能測定法について，実際におこなってみせた。

c）入院・外来患者について検査・治療方針の指示をおこなった。

3）対　象

講演はDiploma Courseの学生14名，ほか皮膚病研究所の医師，技術員など約30名におこなう。反応はきわめてよく質問も活発である。とくにはじめに黒板をもちいくわしく話してから，自分のデーターを中心に研究の考え方を述べたため，理解しやすいという評価をえ，

レヌー所長からも聴衆の採点が最高をマークしつづけていることを示され，なるべくそのようなかたちで講演を最後までつづけた。すなわち少くとも，こちらの話の主旨は十分に理解させえたと判断できた。

4）携行機材

多人数用光学顕微鏡を，皮膚病研究所へ寄贈した。

ＣＰＣにおける活用が十分期待できる。

5）医療医学の水準

医療水準は欧米で研修した医師が指導しているためかより高いものが感じられた。しかし，医師が少いためとても研究までは手が回らず，その面での遅れは大きいものを感じた。実際に基礎的な面からの研究をやっているものがほとんどいない。

6）そ の 他

こちらの語学力（英語）の必要性をつねに感じた。結局は論文を書いてきた型での説明の形式とならざるをえず，会話力が十分であればもう少し種々のパターンでの話ができたと思う。

質問は毎回多数でてくるが，これで欧米の人との会話になれている身にとってアジアの人達の英語の特有のアクセントがうまく理解できず，くりかえしききなおさないと，こっちがなかなか，その主旨がわからないことが多かった。こちらの云うことはスムースに理解してもらえるが，私自身がアジア人の英語に慣れていないというハンディがあり，質問の主旨を理解するまで冷汗をかく有様であった。

## 業 務 日 誌

| 月　日 | 曜　日 | 内　　容 |
|---|---|---|
| 7. 22 | 日 | 夜バンコク着　　バンコクパレスホテル泊 |
| 7. 23 | 月 | ＡＭ：日本大使館，ＪＩＣＡ訪問後，レヌー所長に会見 |
| | | ＰＭ：皮膚病研究所において，腫瘍免疫の講演 |
| | | 聴衆は約３０名，基礎的知識についての質問が多い。 |
| 7. 24 | 火 | ＡＭ：レヌー所長と風土病の下腿潰瘍についての討論と研究打合わせ。 |
| | | ＰＭ：角層のバリヤー機能について講演。とくに機器について質問が多い。 |
| | 水 | ＡＭ：バンコクパレスホテルよりサイアムインターコンティネンタルホテルへ移る。 |
| | | ＰＭ：角層の柔軟性とその水分保持能について講演。私の開発した機器に |

| 月　日 | 曜　日 | 内　　容 |
|---|---|---|
| | | ついて質問あり。 |
| 7. 26 | 木 | AM：炎症の化学伝達物質について講演。<br>PM：乾癬の発症機序について講演<br>とくに免疫機序についての質問が多い。<br>夜，レヌー所長と食事しつつ研究打合わせ。 |
| 7. 27 | 金 | 一日，雨期の風土病である下腿潰瘍の調査ならびに試料採取のため，トンブリの小学校へ行く。この地域の病院の医師と討議。 |
| 7. 28 | 土 | アユタヤへ行く |
| 7. 29 | | AM：水上マーケットへ行く。 |
| 7. 30 | 月 | AM：ライオンズクラブクリニクで，角層機能について講演。対象は，そこで働く皮膚科医，約10名。そのあと外来患者で問題となっているものにつき，一緒に診察し討論する。<br>ブラヴィト医師らと食事しつつ研究の討論をする。<br>PM：皮膚病研究所で無菌性膿疱症について講演。レヌー所長より私の講演の聴衆の採点がわかりやすいということで最高点をマークしつづけていることを教えられる。 |
| 7. 31 | 火 | AM：下腿潰瘍について討論<br>免疫的研究を開始。<br>PM：微生物による膿疱性疾患につき講演<br>夜，タイOCC社社員と食事し討論。 |
| 8. 1 | 水 | AM：下腿潰瘍についての免疫的研究，真菌外来見学。<br>PM：湿疹性病変について講演。 |
| 8. 2 | 木 | AM：皮膚病研究所，入院患者回診，およびCPC。<br>PM：局所ステロイドの作用機序につき講演。 |
| 8. 3 | 金 | AM：バンコク日赤毒蛇研究所見学。<br>PM：白癬の免疫につき講演。<br>その後，コンキエン大学微生物学助教授フアンチヤン，チタソブホン博士と研究内容の打合わせ。 |
| 8. 4 | 土 | AM：チタソブホン博士と研究打合わせ。 |
| 8. 5 | 日 | タイ，OCC社社員とともにタイの昔の建物復元したものを見にゆく。<br>夜，レヌー所長，今村教授と夕食。 |

国　　名　タ　イ
指導科目　第三国研修（皮膚病コース）
派遣先機関　タイ国立皮膚研究所
専問家名　今村　貞夫
赴任時現職　京都大学医学部皮膚科教授
派遣期間　1984.8.6～8.20

# 業　務　報　告　書

2週間にわたって10回，午後講議を行った。受講者は7ケ国（タイ，パキスタン，バングラデシュ，ネパール，インドネシア，フィリピン，中国）計14名のほか，Institute of Dermatologyの医師も講議の内容によって適宜参加し，20余名のこともあった。

受講生は臨床の力に関しては，日本の卒業生とさほど差がないように思われたが，少し基礎的なことを質問すると，その弱さが目につくようであった。私の講義に対しても，臨床に関連した内容の場合には，10以上の質問を浴せられたが，基礎的・研究的な内容の場合には，2～3と少かった。

これは，上記各国では，皮膚科専門家が極めて少く（ネパールは全部で4名）とにかく臨床医を育てることが急務で，試験管や動物による研究を行う段階ではないこと，そして，このような研究はやろうにも設備がないということが大きな理由と思われる。

しかし，臨床をみる場合，ただ単に表面的な現象を，経験を頼りにみているだけでは，進歩がなく，日々変動する医学を理解することが出来なくなるので，臨床の奥にある病気の発生機序に目を向けるよう指導する必要があると思われる。そのためには，臨床に関連した，そして深みのある講演内容が，彼等にとっては，最適であろうと思われる。

8月10日，たまたま，バンコク郊外のチョンブイ部落へ小学生の皮膚病視察に行ったが，多くの生徒が下腿に潰瘍を作っていた。衛生状態が極度に悪く，家畜と共に生活しており，ハエや蚊が多く，これらによって病原菌が皮膚に附着して起こった可能性が考えられた。その原因追及のために，電子顕微鏡による研究や，免疫学的研究をするよう，その方法につき指導を行ったが，タイでこれらを全て行うことは出来ず，一部は我国へ資料を持ち帰り行う必要がある。

Diploma course in Dermatologyは講義をすべて英語で行なわねばならず，講師にとっては大変な努力がいるが，受講生は極めて真目面で知識欲があり，最終日の講義の終りには，大変感謝されたので，苦労も一気に吹き飛んだ感がした。今後，少くとも数年間は続ける必要があると思われる。

## 業務日誌

| 月　日 | 曜　日 | 内　　容 |
|---|---|---|
| 8.　5 | 日 | バンコク到着 |
| 8.　6 | 月 | 血管炎についての講義　　２３名出席 |
| | | 最初の為か質問１名のみ |
| 8.　7 | 火 | 紅斑症についての講義　　２２名出席 |
| | | 質問５～６名あり |
| 8.　8 | 水 | ＳＬＥについての講義　　２２名出席 |
| | | 質問４名 |
| | | 大部，うちとけてきた様子 |
| 8.　9 | 木 | 水痘症について講義　　１８名出席 |
| | | 質問５～６名 |
| | | 中途の休憩時間に寄って来て親しく色々のことを聞く。 |
| 8. 10 | 金 | Cholbin村へ下腿潰瘍の小学生を検診に行く。 |
| | | この為，この日の講義は８．１３に行う（２度）こととする。 |
| 8. 11 | 土 | 休　　日 |
| 8. 12 | 日 | |
| 8. 13 | 月 | 午前　日本人の記載した皮膚疾患について講義　　２０名出席 |
| | | 午後　京都大学で発見された皮膚疾患について講義　　１９名出席 |
| | | みたこともない疾患の為か，質問は全部で４名程度。しかし，なかなか興味をもって聞いていたようだ。 |
| 8. 14 | 火 | アトピー性皮膚炎に関する講義　　２０名出席 |
| | | ６～７名から質問あり |
| | | 興味があったようだ |
| 8. 15 | 水 | 京大で発表した治療法について講義する　　１９名出席 |
| | | 身近な問題の為か，質問は１０以上あり，非常に活発。 |
| 8. 16 | 木 | 免疫蛍光法の応用の仕方について講義　　１９名出席 |
| | | 実験的なことが主だった為か，質問は３名のみ |
| 8. 17 | 金 | 前半，痛風の話をする。　　２名程質問あり。 |
| | | 後半，手湿疹の話をする。　　１９名出席 |
| | | ３～４名質問あり |
| 8. 20 | 日 | 帰　　国 |

国　　名　タ　イ
指導科目　第三国研修（皮膚病コース）
派遣先機関　タイ国力皮膚病研究所
専門家名　西岡　清
赴任時現職　大阪大学医学部皮膚科学教室講師
派遣期間　1984.8.18～8.13

# 業　務　報　告　書

① 講義：皮膚科Diplomaコースの皮膚科医14名及びタイ国皮膚病研究所医師（3～8名）（講義テーマにより異る）に対して「皮膚科の免疫学ならびに免疫学知識の皮膚疾患への応用」をテーマとして以下の10項目について講義を行った。

1 Immunology in dermuatology
2 Patterns of inflammatory skin diseases
3 Mechanism of contact dermatitis
4 Prophyg laxis of contact dermatitis
5 Atopic dermatitis
6 Urticaria
7 Vasculitis
8 Scleroderwa
9 Biochemistry and immunology of bullous impetigo
10 Cutaneous T cell Lymphoma

実験皮膚科学に不慣れの為か聴講者ははじめ1～2回の講義では2～3人からの質問を受けたにすぎなかったが，講義の回数を追うごとに質問が増加し，実験データに対しても質問が出るようになり，講義後の討論時間も長くなる傾向が見られた。今回の講義によって可成りの成果が得られたと考えられる。

② 技術指導：タイ国に発症するEpidemic leg ulcerの原因究明への一つの手がかりとして，病巣より換出されるCorynebacterium pyogenesのワクチン作製法を指導し，同ワクチンを用いての皮膚テストのやり方について指導した。

③ タイ国の医学水準：臨床医学においては日本とほぼ同程度のことが行われているとの印象を受けたが，医学研究においては人的資材の不足のためか，医学研究の立ち遅れを痛感した。

④　その他：医学研究の立ち遅れを回消する方法として，可能ならば，タイ国若手医師の日本研究施設への留学ならびに圧倒的患者数をほこるタイ国との共同研究を組織する必要が考えられる。

## 業　務　日　誌

| 月　日 | 曜　日 | 内　　容 |
|---|---|---|
| 8. 18 | 土 | Bangkokに到着。Airportロビー工事中の為非常に混雑。出迎えのJICA員との出会い非常にむずかしい。要注意。 |
| 8. 19 | 日 | 今村教授と1日を共にし，各種事務連絡を受ける。 |
| 8. 20 | 月 | 午前，JICA officeへ。鈴木氏，川上氏と会い，当地の事情説明を受く。後川上氏とInstitute of Dermatologyへ。Dr.Renooに面会。午後第1回 lecture "Immunology in Dermnatology"行う。聴講生14名　Instituteの医師3～4名 |
| 8. 21 | 火 | 午後，Dr.Renooの技術員2名にEndemic leg ulcer の検索方法について設明する。午後Diploma course第2回講義。"Pattern of inflammatory skin diseases"聴講生数人より質問あり。 |
| 8. 22 | 水 | 午前，Instituteの外来患者数名を診る。午後，第3回 lectuve "Mecnanism of Allergic Contact Dermatitis" |
| 8. 23 | 木 | 午前，第4回 lecture "Prophylaxis of Allergic Contact Dermatitis" 午後，第5回 聴講生よりの質問増加。Instituteの医師及び技術員の参加増加。 |
| 8. 24 | 金 | 午前，第6回 lecture "Urticaria" 午後，第7回 lecture "Vasculitis" |
| 8. 25 | 土 | Free day |
| 8. 26 | 日 | Dr.Renoo(Institute of Dermatology)及びDr.R.Hay (St John's Hospital for Diseases of the Skin, London)と会合。 |
| 8. 27 | 月 | 午前，Bacterial vaccine (for Corynebacterium)によるSkin testを指導すると同時に第8回 lecture "Scleroderma" を行う。午後，Dr.Hayの lectureを聴講し，同時にSkin test の指導を続ける。 |

| 月　日 | 曜　日 | 内　　容 |
|---|---|---|
| 8. 28 | 火 | 午前，Paj-Pracha-Samasai Institute訪問。Dr.Prasert Sampoonachotと会いleprosy患者のdemonstrationならびに同研究所でのactivityを見学すると同時に，Leprosyについての諸問題を討論する。<br>午後，Institute of DermatologyにてCorynebacterium Skin test結果の判定，ならびに　国Dermatologistsと意見交換する。 |
| 8. 29 | 水 | 午前，Carynebacterium Skin Test指導<br>午後，第9回lecture "Biochemistry and immunology of b bullous impetigo" |
| 8. 30 | 金 | 午前病棟回診に参加し、入院患者について討論す。また、Corynebacterium Skin testの72時間後の判定を行ない、Epidemic leg ulcer 患者へのSkin　test実施についてDr.Renooと討論す。午後第10回lecture "Cutaneous T—Cell lymphoma"を行う。 |
| 8. 31 | 土 | Bangkok出発。帰国。 |

国　　名　タ　イ

指導項目　第三国研修（皮膚病コース）

派遣先機関　タイ国立皮膚病研究所

専門家名　市橋　正光

赴任時現職　神戸大学医学部皮膚科学教室助教授

派遣期間　1984．9．2～9．15

# 業　務　報　告　書

## 1. 講　演

### (1) 題　目

〔A〕 Photobiology & photomedicine

a) Princeples of electromycotic radiation

b) Biological effects of UV on human skin

c) photoprotection

d) DNA repair & repair defects

e) PUVA

〔B〕 Recent concepts of cancer metastasis

〔C〕 Chemical marker of malignant neoplasms

〔D〕 Monoclonal antibody and its applications for medicine

〔E〕 Fibrinolytic enzymes

### (2) 概　要

大きく２つに分けることができる。第１は，光線による皮膚反応の基礎と臨床を詳細に説明し，特に光線の障害に対する皮膚の防禦機能としての働きを，細胞レベルでの損傷修復という視点からも解説した。第２は，悪性腫瘍の診断と治療に対する現状と，特に死亡の原因となる悪性腫瘍の転移に対する基本的な知識を癌細胞の多様性と進展という側面から説明し，次いで診断における指標としての化学物質に関し，in vivoとin vitro実験を例を挙げて説明し，最後に今後に期待される新しい治療法にも触れた。

### (3) 対象者の水準と反応

１４人の受講者のうち，特に４～５人は極めて強い反応をいずれの講義においても示してくれた。彼らは皮膚科の臨床医であったため，研究というか科学者としての目が欠けていたと思われるが，恐らく，４月から始ったコースが既に６ヶ月めに入っているため，かなり科学者としての考え方で医学に取り組む姿勢がうかがえた。しかしながら多くの受講者は，現行の治療法そのものに強い関心をよせていた。

2. 機材について

今回は機材を持ちこんでいない。しかしながら，今後の本コースには，The Institute of Dermatology内にある程度の研究所としての持参を揃える必要があると思われる。即ち，講義のみならず，機器を活用した実習を行うことにより，講義内容や論文を読むにあたり，数倍の理解を得られるからである。

3. 受入国の医療・医学水準について

今回は，臨床の実地は行っていないのでタイ国内および，参加学生の各自国における医療水準については推察しかねる。ただ，彼らの質問から想像するに，光線療法などは，有用な人工光源としての機器がないため，Bangkokを除いては活用なしと判断された。

4. その他所感・提言等

Bangkok に１つしか存在しない皮膚病研究所としては外観もさることながら，スタッフも著しく貧弱な印象を受けた。少くともここでは基礎および臨床を含めて研究は殆んで行われていないらしい。Bankokの人口５００万人に対し，皮膚科医は５０人。従って毎日約５００人の外来患者を７～８人の医師で診察しなければならない。午後もかなり治療に費やされる。患者の診療に全てのエネルギーを使うため，その後にlectureないしは，研究を行うことに対して相当な無理があるように思われた。又，ある程度は実技でのdemonstration が必要だということである。細胞培養といっても，テキストや我々の説明だけでは余りにも空しい。The Institute of Dermatologyに簡単な設備が是非必要であろう。特に卒業生に，それぞれの国のdermatology分野での指導的役割を果してもらうには，researcher とは何か？　実際にこのような機器を用いて行われるものかを肌で感じてもらうことも不可欠であろう。

最終講義後，レヌー所長に本diploma courseの今後に対する意見を求められたので，私見を簡単に述べておいた。即ち，①diploma courseは１０年後にどのような成果を期待しているのかを明確にして欲しい。それによりlecture内容や方法も変えることが出来る。②lecture のみならず，簡単な実習をやる方が成果があると考えられる。③そのためには，The Institute of Dermatologyのstaff の養成が不可欠。④本コース開始前後における受講生のscienceに対する意識の変化など，学生側のとらえ方を今後の参考として知りたいので教えて欲しい。などである。

小生にとっても長時間にわたる英語でのlecture は，初めての経験であり，意とするところの幾分の１が彼らに伝ってくれたものかと不安は残るが，確かな反応はあったものと思う。

ＪＩＣＡの皆様方の日頃のご努力を知った点でも，個人的には収獲のあった２週間を過した。

## 業務日誌

| 月・日 | 曜日 | 内容 |
|---|---|---|
| 9. 2 | 日 | TG612にて大阪国際空港を出発し，同日夕方，Bangkok に着。<br>JICA大橋氏ら迎えられ，車で宿泊先のSiam Intercontinental Hotel に着く。翌朝9：00にJICA（Bangkok日本大使館内）を訪問する約束。<br>明日の第一回学生講義のために，スライドを準備し，また，当日のlectureの予定概要を記す。（コピーを学生に配布する） |
| 9. 3 | 月 | 9時より予定通り，JICA訪問。10時よりJICA所長河西氏と約30分間対談。河西氏から，現在のタイの国力や東南アジアにおける位置づけなどにつき，話を伺った。小生からは，最近における日本のアジア諸外国への援助に対する在り方につき所感を述べさせていただいた。要点は，日本で学ぶ外国人にとって最も欠けているところは，帰国してからのrelationship であること。従って，今回のdiploma courseに関しても，卒業生に対し，今後いかなる対応の予定かなどをうかがった。<br>川上氏（JICA）に御案内いただいてThe Institute of Dermatologyに正午過ぎ到着。レヌー所長と今後の講義予定などにつき簡単に話し合った。午後1時より，第1回lectureとして「PhotobiologyとPhotomedicineその1」を講義。学生たちの目と反応を観察しながらの2時間であった。夕方帰宿後はホテルで明日の準備。 |
| 9. 4 | 火 | 午後1：30～4：30まで「PhotobiologyとPhotomedicineその2」講義。<br>昨日に続き光線の物理学的特徴につき概説。途中10分間のcoffee break中も学生より質問があり，講義に対する彼らの反応を知るため，こちらからも次々と質問を出す。 |
| 9. 5 | 水 | 午前中はホテルでlectureの準備。午後1時半より4時まで「PhotobiologyとPhotomedicine その3」を講義。学生との対話もスムースとなりlectureも楽しくやれた。光と皮膚反応・皮膚病に関し，彼らの興味がどんどん湧いてくるのを感じた。毎日12：50頃に研究所に着くがその後1時半までの間は，用意していただいた広い一室で講義の準備をするが，この間にレヌー所長と研究室の現状について話を伺った。彼もstaffが1人でもいいから欲しいらしい。研究のためのstaff として |

| 月　日 | 曜　日 | 内　　容 |
|---|---|---|
| | | タイ国人の医師に期待するのは，非常に難しいらしい。日本同様に患者を診療している方が，収入がbetterだという。 |
| 9.　6 | 木 | 1時半より定時の講義。特にＤＮＡ修復の話は難しかったらしいが，数名は興味をいだいてくれたようだ。いずれにしても，どの学生たちも，帰国後は，日常診療に追われるらしい。従って難しい理論よりも，やさしい，しかも日常臨床に役立つ治療法などの講義を期待している。それだけに基礎的内容の講義は味付けが大変である。 |
| 9.　7 | 金 | 昨日に続いて，今日も昼休みには，レヌー所長と彼女の臨床研究「Corynobacterium pyogenes」について討論。Bangkok の衛生状態がからんでいる（はだしなどの生活様式）ものらしい。日大皮膚科教室鈴木助教授が，この件に関して，共同研究中であったらしく，その成果をもって一昨日よりBangkok に来られており，彼を囲んだ小宴が催され，彼からの研究報告がなされた。 |
| 9.　8 | 土 | 休日でlectureはなし。完全休養日として，Bangkokのtemple を観た。タイ人の生活様式，特に仏教を信じる人間としてのタイ人の一端を知るには有意義であった。 |
| 9.　9 | 日 | 休日。lectureはない。後半１週間のlectureの為の準備で終った。 |
| 9. 10 | 月 | 午後１時半より第６回め講義。「癌移転について」を行ったが，全員強い反応を示した。lecture後，数人の学生から論文をコピーしたいとの申し出があり，いくつかを推薦した。学生の中でも，バングラディッシュなど一部は英語力が大変良く，また，かなりbasic scienceに興味を持っており，既報の主たる論文は読んでいるようだが１４人中の大半はbasic scienceに関しては何も知らぬようであり，医学もscience であることをlecture毎に話す必要を感じた。 |
| 9. 11 | 火 | 午前１０：００～１１：４０まで第７回めの講義を行う。これは，PhotobiologyとPhotomedicineの講義で時間不足のために追加を申し出て，特別に行ったものである。ここでは特に光線療法について話したが，やはり治療に結びついたものは多くの質問があり活発であった。<br>午後１：３０から約２時間「新しい放射線療法」のlecture を行ったが，内容が少々難しく，かつ，設備を実際に見ていない学生にとっては，理解するのが大変なようだ。「光線テスト」の臨床実地指導を行った。 |
| 9. 12 | 水 | 午後１時３０分より約２時間にわたり，癌のchemical marker につき |

| 月　日 | 曜　日 | 内　容 |
|---|---|---|
| | | 講義。小生が過去７年間近く行ってきたin vitroと臨床の連結した研究につき説明し，researchの重要性と面白さを彼らに理解してもらうよう努めた。 |
| 9. 13 | 木 | 最近の医学の１つの核ともいうべき「モノクロナール抗体」につき概説し，モノクロナール抗体の有用性に焦点を絞りながらも，その歴史的背景をも知ってもらうよう話した。今後に期待することの大きなimmunotoxin（転移癌の治療）に関しては，強い関心が集まっていた。学生の目の輝きぶりから推して，少くとも彼らの一部はbasic scienceにも強い興味を抱いてきたものと信じる。 |
| 9. 14 | 金 | 最終講義。これまた癌の転移に関係した材料として「酵素」を選んだ。また，期日より私の講義終了後に２人の学生にそれぞれ３０分ずつの時間で研究論文を紹介させた。予想以上に内容を理解していてくれるので驚いた。全くbasic researchを行っていない彼らのために論文の読み方を教えておくことは，重要なことと考えられたので，一部の学生のみにしか行えなかったとは言え，一応の成果はあったものと確信する。 |

国　　名　タ　イ

指導科目　第三国研修（皮膚病コース）

派遣先機関　タイ国立皮膚病研究所

専門家名　神崎　保

赴任時現職　北里大学医学部皮膚科助教授

派遣期間　1984.12.8～12.22

# 業　務　報　告　書

① 講演・技術指導

題目：Basic Sciene Seminar……Cell Biology-Oriented

概要：疾患（特に皮膚の）を診たら，なぜその様な疾患が発生するか，その現象を如何に理解したらよいか。

対象者の水準：かなり高レベル。知的には日本の若手医師くらい。しかし，その才能は，日本の医師より，はるかに高い。日本では，一般の人間が医師になるが，東南アジアではかなり高レベルの知能をもった者が，医師になるためと考えられる。彼らを十分教育すれば，日本人医師よりもはるかに秀れた医師になると考えられる。

人数：合計14名

タイ7名，タイ他の国の人（パキスタン1，バングラディシュ2，ネパール1，インドネシア1，フィリピン1，中国1）7名

反応：こちらが，かなり高レベルの講議をしたにもかかわらず，聴講生全員が私の話を十分理解し，興味をもったと考えられる。

② 携行機材

なし

彼国の人々に高価な機材を寄贈しても殆ど役に立たないと考えられる。（現時点では）

理由 ⒾⒾ 基礎的なトレーニングが出来ていないので，その機材の維持がむずかしい。

ⒾⒾⒾ その機材を使って，いかなる仕事をしたらよいか，というトレーニングが出来ていない。

③ 医療・医学水準

知的水準はかなり高いが，それを生かす社会環境ができていない。

④ 提　言

彼らは，知的には日本人以上のものをもち，かつ，その意欲は日本人以上である。しかし，彼等にはそれを生かすトレーニング及び社会環境が不十分である。

聴講生１４名中，Dr.Bimala Ojha（ネパール），Dr. Suthep Pyrochpongpun（タイ），Dr.Sumardi Radiono（インドネシア），Dr.Chairat Taw Choroen（タイ），Dr. Shahid Ullar（バングラディシュ），Dr.Bao Tian Yu（中国）の６名は日本に来て３ヶ月～２年滞在し，臨床医学・研究を積極的に学びたいという意志表示が強くあった。これら全員でないにしても，毎年２～３名の人々を日本の大学に受け入れ，教育すれば，10～30年後には，彼らはその国の大きな指導者の１人になるものと考えられる。

私達日本人講師達に大きな親密感と感謝の気持を，聴講生１４名全員が持って，各々の国へ帰っていくものと考えられる。この１年間の私達の仕事は，日本の国際親善に大きく寄与したと考えられる。

彼等の人的・知的援助のため（物的援助は不要）ＪＩＣＡの一層の努力を望む。

## 業務日誌

| 月　日 | 曜　日 | 内　容 |
|---|---|---|
| 12．8 | 土 | 成田発。バンコク着。ＪＩＣＡより出迎え。 |
| 12．9 | 日 | 休　日 |
| 12.10 | 月 | 憲法記念日。休日　講演の用意。 |
| 12.11 | 火 | ＪＩＣＡ（日本大使館内）訪問。高山書記官と会談。<br>ＪＩＣＡ河西所長，笠原氏と会談。今後の予定につき話す。<br>午後，Dermatology Institute所長Dr.Renooと会談。<br>〃　第１回の講義①，タイ側聴講者約２０名，タイ外人７名。<br>夜，Dr.Renooと会食。 |
| 12.12 | 水 | 午前，Instituteの特別外来（真菌感染症）にて外国人（７名）指導。<br>午後，講義② |
| 12.13 | 木 | 午前，入院患者の回診。Consult。ＣＰＣ出席。発言。<br>午後，講義③ |
| 12.14 | 金 | 午前，講義④<br>午後，Bangkok市内合同Bimnoth　Conference出席，発言。<br>夕食・会食（大谷参与，村田，加藤，寺尾，神崎（ＪＩＣＡ），鈴木，高山（大使館）） |
| 12.15 | 土 | 午後，Instituteの人と会談。 |

| 月　日 | 曜　日 | 内　　容 |
|---|---|---|
| 12.16 | 日 | 休　　日 |
| 12.17 | 月 | 午前，講義のための問題作り。 |
| | | 午後，講義⑤ |
| 12.18 | 火 | 午前，外来コンサルタント |
| | | 午後，講義⑥ ＪＩＣＡ（宮本・佐藤）と会談。 |
| 12.19 | 水 | 午前，講義のための問題作り。日本大使館・堀内氏と会談。 |
| | | 午後，講義⑦ |
| 12.20 | 木 | 午前，廻診。C.P.C |
| | | 午後，講義⑧ |
| | | 夜　Inst. of Dermatologyの聴講生とのParty（14名出席） |
| 12.21 | 金 | 午前，ＪＩＣＡへの報告書作り。Dr. Renooと会談。 |
| | | 午後，最終講義⑨ |
| | | 夜　会食（パーティー）ＪＩＣＡ主催 |
| 12.22 | 土 | 朝　バンコック発 ― 成田着（夕） |