

SEATO MEDICAL RESEARCH STUDY ON NEUROPSYCHIATRY

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INTRODUCTION

During the past year the data collection phase of anthropologic work was completed among the North Thai by Gertrude W. Marlowe, Ph.D., Research Associate, University of Pennsylvania; among the Kayah and Shan by Frederic K. Lehman, P.D., Professor of Linguistics and Anthropology, University of Illinois; and among the Karen by David H. Marlowe, Ph.D., WRAIR. All of these ethnographic works will provide data concerning minority groups in an area where minority status is being overtly and covertly exploited as a tool of subversion and insurgency. Needless to say, understanding social and cultural determinates of behavior in this setting is of the utmost military, scientific, and human importance.

As a continuation of this program in Northern Thailand Mr. E. Paul Durrenberger, M.A., (supported OSTG contract under the auspices of WRAIR) Ph.D. candidate, University of Illinois, is studying the Lisu hill people in Chiang Mai Province, their ethnography and their concepts of health and illness. He is a SEATO sponsored staff member of the Tribal Research Center of Chiang Mai, the institution of the Thai Government officially responsible for collecting information about the non-Thai hill peoples; thus, the critical data that he collects will be available to the Royal Thai Government.

In order to obtain information about the interaction of sociocultural processes, ecology, economic resources, and human development and disease, a study is now being designed to be carried out in the predominantly North Thai and Lua' community of Mae Sariang town in Changwat Mae Hong Son in northern Thailand near the Burmese border. The primary aim of this study will be to provide basic survey information about what diseases occur in this previously unsurveyed but potentially insurgent area. This study is being developed and coordinated with part of a long term study of Lua, and Karen in Amphoe Mae Sariang by Peter Kunstadter, Ph.D., affiliated with the Department of Anthropology and School of Medicine, University of Washington (Seattle). The neighborhood where this study is planned will be totally enumerated and demographically defined by Dr. Kunstadter, so that a point prevalence of pathologic findings may be obtained for a defined population. A random sample of the neighborhood and all new arrivals from the hills will be studied. This coordinated effort will utilize biomedical and epidemiologic techniques to evaluate independently the correlation of biomedical data with predictions derived from observed and reported behavior. A group of people that have a long history of valley residence will be compared with recent valley occupants and people of one ethnic identity with others of the same or different identity on various biomedical parameters. Attention will be given to nutritional status of the population and the possibility of evaluating organically based behavioral deficits resulting from intermittent sub-subsistence in the mountain regions. This study has evolved through joint efforts of the Departments of Epidemiology and Neuropsychiatry and Dr. Kunstadter, with generous consultation and help from others, particularly participants at the Conference of Medical and Social Scientists held at SEATO Medical Research Laboratory a year ago, and Joseph Wray, M.D., of the Rockefeller Foundation. The critical phase of medical data collection will be initiated in early May with a study of medical behavior and completed in June with biomedical sampling. Specimen analysis will probably not be finished until August 1969 and the entomologic survey of the area will not be completed until the full yearly weather cycle is observed. This work builds on a study carried out in Kunstadter, Yuill and Damrong's report, "Social Integration and Ecological Isolation: A Report of a Medical Survey of a Lua' Village in Mae Hong Son Province, Northwestern Thailand"—to be published by the National Research Council of Thailand—which among other things suggested the absence of dengue in a mountain region of Ban Pa Pae of Amphoe Mae Sariang and in Mae Sariang town itself. (The absence of clinically identified dengue or Thai hemorrhagic fever in the region of Mae Sariang further suggests a dengue free zone.) It is likely that this study will involve a cooperative effort with most disciplines as SMRL participating.

Another project of medical importance in the North of Thailand is being carried out by Clark Cunningham, Assistant Professor of Anthropology, University of Illinois, Chiang Mai Project, (USOM Contract) who is working at the Medical School in Chiang Mai. His initial work in Thailand was supported by OTSG contract (WRAIR). He is currently charged with the responsibility of developing social science teaching at Chiang Mai Medical School, and is also collecting data on medical behavior in Amphoe Sarapi (a target area for introducing the Thai Government's modern medical services and medical students to rural populations) and examining the influence of malaria control upon population growth and economic change in that region. The existence of twenty-year-old base-line data on the Sarapi population makes this study a particularly promising one, since this data antedates the initiation of malaria eradication.

The editing of the proceedings of the Conference of Medical and Social Scientists, March 1968, is not yet completed; however, the papers presented at the conference have been sufficiently organized that they can be made available for review by the professional staff at SEATO Medical Research Laboratory and other appropriately selected professionals. These papers contain information concerning: (1) sources of national and local demographic information; (2) establishment and maintenance of administrative, service, and other human relationships when carrying out surveys and long term studies in the villages; (3) the epidemiologic and technical factors influencing interpretation of any virologic serologies; (4) behavioral influences upon disease prevalence; (5) incidence interpretation of infestation versus disease and control of parasitic infestation; (6) relation of research to programmatic planning; (7) health behavioral patterns and disease concepts in Karen, Lua', Shan, and North Thai people; (8) management of communicable disease problems, and (9) interdisciplinary research problems and project development. (Individual papers can be permitted outside the Department of Neuropsychiatry only with the permission of the authors.) We plan to have these papers ready to present to the new Director and the conference participants by 1 September 1969.

During the fiscal year two principal investigators departed from the SEATO Medical Research Laboratory: David H. Marlowe, Ph.D., a cultural anthropologist who was working with the Karen, and LTC Kenneth Stuart, MSC, Language Project Officer. Both completed their projects and returned to the United States without replacement. Dr. Marlowe's final report has been completed and submitted to the National Research Council; however, since his report constitutes a lengthy data paper it could not be included in this Annual Report. (A brief summary of his report is included).

Jonathan J. Russ, CPT, MC, Research Psychiatrist joined the Department in September and has joined LTC Holloway in carrying out instructional and consultive work at Phra Mongkut Klao Royal Thai Army Hospital, Children's Hospital, Srithunya Hospital, Chiang Mai Medical School, at the DOD sponsored management course, with the Association of Military Surgeons and Pharmacists of Thailand, the Thai Medical Association and the Thai Psychiatric Association.

In the course of informal work with LTC Arun Chaowanarai and Colonel Supoch Kwanmitra, LTC Holloway and CPT Russ have had an opportunity to familiarize themselves with the clinical status of a population of Thai evacuees exposed to combat stress. Although this is not a formal study, it is hoped that a joint paper can be developed with the staff of Phra Mongkut Klao Hospital. The personnel of the Neuropsychiatry Department have had the welcome opportunity to support Colonel Supoch and LTC Arun's plans for the development of military psychiatry in the Thai Army, particularly the institution of early treatment for "psychiatric" combat casualties.

Sangan Suwanlert, M.D., of Srithunya Mental Hospital has been assisted in translating into English his work on one type of spirit possession, Phii pob; its phenomenology, epidemiology, medical importance, and psychiatric significance. This work, carried out while Dr. Suwanlert worked on medical civic action teams in Northern Thailand, is a significant contribution to the literature on cultural influences affecting symptom choice and healing. (Copies of Dr. Suwanlert's work may be obtained by contacting him at Srithunya Mental Hospital, Nondhaburi Thailand.)

Dr. Hatal Chintanond, Chief of the Neurological Institute at Somdej Chao phya (Mental Hospital) Dhonburi, and Dr. Thongchun Hongsladaram, Associate Professor of Neurology at Chulalongkorn Hospital, report that cysticercosis is probably the most common cause of secondary epilepsy in Thailand. As yet unpublished neuropathologic information collected by Dr. Ishizakai was cited in support of this view as well as other work performed on brains from hospitalized mental patients. This was the first time that cysticercosis of the brain was reported to the coordinator as a clinically important problem in Thailand; previously a low incidence of human cysticercosis had been alleged. Further neurologic, neuropathologic, epidemiologic, and parasitic work may be indicated to learn more about this.

Bai Krathom (*Mitragyna Speciosa* Korth, the family Rubiaceae) was brought to the attention of LTC Harry C. Holloway, MC, as a herbal allegedly often used to treat opium addiction.^{1, 8, 10, 13} The following information and the attached bibliography were obtained with LTC Kenneth Stuart, MSC, and LTC Holloway. (The Thai references were translated by LTC Stuart and assisted by our office staff.)

The plant is a medium sized perennial hard wood tree with a white flower that turns yellow, whose leaves are chewed fresh, made into a tea, dried and powdered and consumed with Chinese tea, smoked or dried and boiled and made into a gum. (This preparation is called "Chantu" by the Malays). The supposed pharmacologic effects are decreased feelings of tiredness, decreased muscular fatigue, and decreased perception of discomfort. It is reported by often used in treating "dysentery," stomachache, and nervous disorders.¹

People who chew the leaves are said to use between 10—30 leaves per day. Twenty leaves are said to contain about 17 mg. of mitragynine, the active principle in the leaves.¹ An overdose (50 mgm) produces motor excitement, giddiness, rombergism, tremors of the extremities, face and tongue;¹⁰ withdrawal of drug reportedly results in diarrhea, weakness, irritability and agitation.¹

Cultivation and sale are prohibited by Thai law but it is reported that trees continue to grow here and there in secluded areas. One author expresses the fear that the law forbidding the growth of the plant may lead to its extinction,¹ but our rather casual investigation does not indicate that the tree is very hard to find.

As noted, Bai Krathom is reported to be a useful drug for treating, or perhaps for replacngi opium. Clear scientific documentation of this claim is lacking but reportedly the leaf is still used for this purpose as well as to treat diarrhea. A systematic description of how this drug is used within the context of the total Thai medical system is lacking. A casual survey of Thai friends indicates that most had experience with Bai Krathom as either a tonic or anti-diarrheal. This experience was most common during childhood, and none are regular users at present. Some laboring men may use this drug to decrease tiredness and increase work output. A description of Bai Krathom addicts from the Thai literature follows:

"Krathom leaves will numb the nerves of the eater or smoker, eliminating stiffness and pain, and bodily work could be performed enduringly, not easily tired; this causes the habit of Krathom eating. The Krathom addicts are usually hard workers of jungle travellers such as chauffeurs, jungle produce pickers, boatmen, and even elephants are also given Krathom to eat. Krathom addicts usually possess the physical appearance of thin bodies, swelling stomachs, dried and sunburnt complexion, dark lips; these people work enduringly in the hot sun, but they cannot withstand the rain which makes them easily catch cold."⁽¹⁾

We have seen the leaf, but we have not experimented with the drug because we are not equipped to evaluate any of the pharmacologic claims for, or accusation against, this agent. Some habitual users are hospitalized. Four and four tenths per cent (4.4%) of the patients at Thanyarak Narcotic Hospital are addicted.¹⁹

In 1932 a general pharmacologic study of the drug noted:

"Mitragynine may be described as a general protozoal poison, in that it kills paramoecia at high dilution. Applied to isolated tissues, it has a general depressant effect. Thus, it diminishes the excitability of plain muscle, anaesthetises the cornea, and is toxic to animals in fairly low doses. In the first of these effects it resembles quinine. Examined in more detail, its actions on the nervous system may be considered

under two headings. First, its effect on the autonomic system, which consists, apparently, in a facilitation of the passage of impulses, and which affects both the cranio-sacral and sympathetic divisions. Second, its action on the central nervous system, which consists in an increase in the excitability of the medulla, and probably of the motor centers. In this respect, it resembles cocaine. There is nothing to suggest that it is effective either as an antiseptic against bacteria or against pathogenic protozoa. The investigations here described do not assist us in explaining its action as a drug of addiction."¹⁰

Recent chemical work describe structure of the alkaloids isolated from the leaf and their chemical properties.^{2,3,4,5,6,11,15,16,20} Without elaboration or reference, Trease and Evans state that one of these alkaloids is equal to codeine as an analgesic.²⁸ Apparently, Smith, Kline, and French Laboratories have done some work with these alkaloids but have not reported their results.

The purpose of this brief review and the attached bibliography is to draw attention to the fact that a purportedly psychoactive, analgesic, and stimulant herbal exists in traditional Thai pharmacopeia. A number of alkaloids have been isolated from Bai Krathom. We can find no modern psychopharmacologic studies of the effects of the drug on animal and human behavior. It may be a useful drug, a dangerous drug, both useful and dangerous, or inactive psychopharmacologically. We do not have facilities to pursue a proper investigation of this drug, but it may be worthy of further evaluation.

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