

2 copies  
55cc k.

**MAIN FILE**

JPRS: 4880

16 August 1961

ACHIEVEMENTS IN CHINESE TRADITIONAL MEDICAL TREATMENT OF  
SCHISTOSOMIASIS AND MALARIA

- Communist China -

U.S. DEPARTMENT OF COMMERCE  
OFFICE OF TECHNICAL SERVICES  
WASHINGTON, D.C. 20540  
**MAIN FILE**

19990305 089

Distributed by:

OFFICE OF TECHNICAL SERVICES  
U. S. DEPARTMENT OF COMMERCE  
WASHINGTON 25, D. C.

U. S. JOINT PUBLICATIONS RESEARCH SERVICE  
1636 CONNECTICUT AVE., N. W.  
WASHINGTON 25, D. C.

**DISTRIBUTION STATEMENT A**  
Approved for public release;  
Distribution Unlimited.

**DTIC QUALITY INSPECTED 3**

## FOREWORD

This publication was prepared under contract by the UNITED STATES JOINT PUBLICATIONS RESEARCH SERVICE, a federal government organization established to service the translation and research needs of the various government departments.

JPRS: 4880

CSO: 1672-S/6-7

ACHIEVEMENTS IN CHINESE TRADITIONAL MEDICAL TREATMENT OF  
SCHISTOSOMIASIS AND MALARIA

[Following are translations of selected articles by the  
Research Institute of Chinese Traditional Medicine.  
Additional bibliographic information accompanies each  
article.]

TABLE OF CONTENTS

	<u>Page</u>
Achievements in Chinese Traditional Medical Treatment of Schistosomiasis	1
Achievements in Chinese Traditional Medical Treatment of Malaria	17

## ACHIEVEMENTS IN CHINESE TRADITIONAL MEDICAL TREATMENT OF SCHISTOSOMIASIS

Following is a translation of an article by the Research Institutes of Chinese Traditional Medicine in Ch'ing-chu Chien-kuo Shih-chou-nien I-hsueh K'o-hsueh Ch'eng-chiu Lun-wen Chi, Volume 1, Peiping, December 1959, pp 319-326

Schistosomiasis has been prevalent along the banks of the Yangtze and in the farming villages of south China. Thousands of farmers and fishermen have been infected by it, and the general population has been threatened by it. Since the reactionary governments in the past did not concern themselves with the sicknesses and hardships of the people, they did not choose to apply prevention and treatment, and even went so far as to let schistosomiasis, like the "God of the Plague," harm the health of the working people. In many rural areas homes were broken up, people died, and fields became uncultivated, very seriously affecting production in the farm villages.

Since the Liberation, the Party and the People's Government have shown great concern for the health of the people, and have initiated vigorous research work on schistosomiasis. In recent years, schistosomiasis has already been exterminated in more than half the epidemic regions. The credit for these glorious accomplishments must first go to the inspired Party leadership, to the alliance and technical cooperation between Chinese and occidental medicine, and to the work done by the masses in the extermination of harmful diseases.

In short, a definitive victory has already been obtained in this historically significant and great struggle to prevent and treat schistosomiasis. Great accomplishments have been attained in prevention, diagnosis, and treatment. We shall now make a general summary of these accomplishments made by our traditional national medicine.

### I. Records And Treatment of Schistosomiasis, In Our Nation's Medical Study

Although it was not until 1905 that we had reports of definitely diagnosed schistosomiasis clinical pictures resembling schistosomiasis can be found on the basis of ancient medical records of "worm poison," "worm dysentery," "worm swelling" (or "bloating"), "water poison,"

"bowel obstruction," and "bowel diseases." It can be seen that this type of disease existed and had been discovered at an early period in our nation.

Ch'ao Yuan-fang (巢元方) of the Sui Dynasty, in his General Discussion on the Origin of Diseases (Chu-ping-yuan-hou Tsung-lun) writes as follows of "worm poison" (ku-tu): "In the mountain streams there is the sand-louse. The worm is very fine and cannot be seen. When people enter the water to bathe, the worm attaches itself to the body. It also can attach itself to the body on rainy days when it crawls along the grasses. It then bores into the skin. It can be diagnosed in its first stage by redness of the skin, which resembles small kernels of millet. If the red area is rubbed with the hand, there is a needle-like pain. After three days pass, the hundred joints ache, there is strong pain, cold and fever....." It also says, "When the disease breaks out, the body turns hot and turns cold, the hands and feet ache without cease, there is vomiting, red-yellow urine, abdominal discomfort, chest pain, and pallor." It also says, "There is a discharge of blood, emaciation, and a withered black coloration followed by death." It also says, "The pulse is sinking and dilatory....There appear to be worms roving beneath the skin....The abdomen is swollen like that of a toad." It also says, "The water poison joins with the ch'i internally, causing the abdomen to swell and produce sounds when moved. There is a frequent desire to drink water, and the skin is black and appears swollen with fat. This is called 'water worm' (shui-ku)." It also says, "Because of stoppage in the channels, the water and ch'i are stopped and gather in the abdomen....There are lumps in the abdomen which press against the ribs. There is great swelling, and the whole body is enlarged. Therefore it is called water intestinal obstruction (shui-cheng).

Weng Tsao-chiang (翁藻江) of the early Ch'ing, in his Medical Documents (I-ch'ao Lei-pien) said, "Those with worm swelling surely have organisms within them. The abdomen is enlarged greatly, and if it is not a worm, then it is blood. The symptoms are a large abdomen, which, when pressed, is lumpy. The limbs are emaciated, and there is a fever which does not recede."

The above literature shows that through history our traditional doctors have considerable knowledge of the symptoms of schistosomiasis, and moreover recognized that it resulted from the penetration into the skin of a small water worm invisible to the naked eye. From this, many experiences in its treatment were developed.

In the last three to five years, in the collection and exchange of experiences of research and popular drug treatments, some principles of treating schistosomiasis have been worked out. Speaking in general, these can be divided into two aspects. One of these is the use of vermicides in accordance with the etiology of the disease. The other is the utilization of such treatments as reduction of abdominal fluid, reduction of liver and stomach enlargement, and the increasing of body strength according to the principles of discrimination of symptoms and treatment (pien-cheng shih-chih) following the clinical signs shown by

the patient. These two methods may be used together or independently according to the state of the disease.

## II. Treatment of Early Schistosomiasis

In the treatment of early schistosomiasis, our national medicine has adopted vermucidal methods. In recent years, on the basis of the alliance and co-operation of the great Chinese medicine and occidental medicine, and based on our pharmacological records and popular experiences, we have created many prescriptions for treating early schistosomiasis through practical clinical treatment. Examples of these are vermucidal drug prescriptions such as Betel Nut Pills (Fu-fang pin-lang wan), Piper Cubeba pills (Pi-teng ch'ieh wan), Vitalize-blood vermucidal pills (Huo-hsueh cha-ch'ung wan), Ch'i-hsiung wan (note: ch'i refers to the varnish tree, *Rhus vernicifera*), Tu-hsi-wan *Bufo gargarzens* L., and crow gall. We shall elaborate on these below.

1. Compound Betel Nut Pills (Fu-fang Pin-lang Wan): Five drugs are used to compound them: betel nuts, flowers of sulphur  $[As_2S_3]$ , the flesh of yew nuts, *Rubia cordifolia* var. *mungista*, and *Calamus margarit. ae Hance*. According to a report (1958) from Yuan-chiang Hsien in Hunan on prevention and treatment of schistosomiasis, this prescription was used in treating 103 cases of early and intermediate schistosomiasis, and it clearly improved subjective and body symptoms. Body weight and working power also markedly increased. Fecal examination for ova were negative in 67% of the cases. Long term effectiveness after a period of seven months was 76.2%.

2. Compound Piper Cubeba Pills (Fu-fang Pi-teng Ch'ieh-wan): Four drugs are used in the preparation of this compound: Piper-cubeba, *Inula Helenium* L., dried alum, and *Stemona sessilifolia*. According to a report (1957) by the Su-chou Municipal Hygiene Bureau, they treated 160 cases of early schistosomiasis. A half month to a month after beginning treatment, symptoms improved. Diarrhea decreased in frequency, and there was a reduction of blood in the feces. Body strength and spirits improved, and after two months, 20% of the patients had regained their health and normal working strength. The ova feces rate was 50% negative. Later, in Hunan Province (1958) betel nut and Piper Cubeba were added to the original prescription, and in Han-shou Hsien 152 cases were treated for early schistosomiasis. After about 40 days of taking the drug, the egg ova rate was 64.5% negative. Long term effectiveness awaits further examination.

3. Vitalize-Blood Vermucidal Pills (Huo-hsueh Sha-ch'ung Wan): They are compounded of the following drugs: Piper cubeba, *Inula Helenium* L., *Stemona sessifolia*, betel nut, pods of *Gleditschia sinensis* (ya-tsao-chiao), *Ligusticum acutilobum*, *Sophora flavescens*, Centipede, *Erythrina indica* Lam., *Dianthus superbus*, and pien-ch'u  $[Polygonum aviculare]$ . According to a report (1958) from Hunan Province, in Han-shou Hsien Huo-hsueh Sha-ch'ung pills were used to treat 257 cases of early schistosomiasis. In the first group of 217 cases, it was 64.1% effective in the early period. Its long term

effectiveness after three months was 56%. In the second group of 40 cases, it was 67.5% effective in the early period, and 58.9% effective after three months. Upon re-examination after eight months, it was 50% effective. In February, 1958, 25 more cases were treated, and the results of fecal examination showed it to be up to 80% effective. In addition, experiments were conducted using 25 rabbits, and the results showed that this drug brought about 20.6 - 38.5% reduction in parasites. However, a cure of the basic disease was not observed.

4. Ch'i-hsiung-wan: This is compounded of sheng-ch'i (Raco Lacquer) and the flowers of sulphur. According to a report (1957) from the Kiangsu Province, Chu-jung Hsien Schistosomiasis Prevention and Treatment Station, Ch'i-hsiung-wan were used in treating ten cases of schistosomiasis. At the time it was begun, fecal examination indicated an increase in ova. At the time the patients left the hospital, fecal examination for ova was negative in eight of the cases. The Station has concluded that Ch'i-hsiung-wan have a stimulating action on development of the parasite, particularly on the reproductive system, so that at first it stimulates ovulation to increase greatly, resulting in their gradual exhaustion and death. This drug is also effective in shrinking enlarged liver and spleen. Ku Po-jan (顧博然) (1957) used this drug to treat four cases of schistosomiasis. Fecal examination after treatment was completely negative.

5. Tu-hsi-wan: Six drugs are used in compounding them: Sapan wood, juice from the warts of a toad, red hibiscus, (Curcumalonga L.) Kuang-chiang-huang, and (Polygonum tinctorium Lour.) According to a report from Ch'ing-fu Hsien in Kiangsu (1956-1957), this drug was used in treating 57 cases of schistosomiasis. Fecal examination showed it to be 59.75% effective in the early period. It was also effective in lowering fever and reducing liver enlargement. Li Wei-hsiung (李維雄) (1957) treated six cases of schistosomiasis with this method, and after 13-18 days of treatment fecal examination was completely negative.

6. Flowers of Sulphur Pills (Hsiung-huang-wan) [Orpiment?]. Six drugs are used to compound them: flower of sulphur spirits, dried alum, Aloe vera L., Lingusticum acutilobum, Areca catechu L, and Mylittapidescensfor. According to a report by Wang Ta-ch'eng (汪達成) and Chang I-t'ang (張文堂) (1956), they tested the use of this drug in treating 18 cases of early schistosomiasis. The drug was taken for three weeks. After 30 days, a fecal examination for ova was negative in ten cases.

7. Compound Vermicidal Pills (Fu-fang Sha-ch'ung Wan): The following drugs are used in their compounding: Dianthus superbus, Sturnus cineraceus, Mylittapidescensfor, Areca catechu, flowers of sulphur, Evodia rutaecarpa, Hardostacbys jatamansi, Melia azedarach L., Xanthoxylum piperitum, and Glyccyrrhiza glabra. According to a report by the Schistosomiasis Prevention and Treatment Group of the Research Institutes of Chinese Traditional Medicine Ministry of Health (1956), a concoction of this drug with Dianthus superbus and Glyccyrrhiza Glabra was given in treatment of 15 cases of early schistosomiasis. Fecal ova examination was negative in ten cases.

8. Hsiung-pin-san: Flowers of sulphur, Areca catechu L., and

yew nut are used in compounding it. According to a report (1958) by the Ch'eng-tu Chinese Medical Academy, it was used in treating 25 cases of early schistosomiasis, and after 20 days, the fecal examination was negative in 18 cases.

9. Crow Gall (Ya-tan-tzu): This was originally a drug used in treating Amoebic dysentery. According to a report (1957) by the Schistosomiasis Hospital of the Yunnan Hygiene Office, it was used in a 40 day treatment (48 grams total), and also used in treating all stages of the disease in 30 cases. Very good results were obtained. In 26 of the cases, after taking the drug a few weeks, microscopic examination of the feces showed that ova decreased from 3-4 to 0-1 per field of vision. After the fourth week, it was entirely negative. The Chu-jung Hsien Schistosomiasis Prevention and Treatment Station in Kiangsu (1957) used crow gall in seven cases of schistosomiasis in which the patient was weak and unable to receive antimony preparations. Good results were also obtained.

10. Bufo gargarzans L.: This is a drug from a wild plant of the family Liliaceae Thunb. and the genus Hererecallis flava. According to a report (1959) by the Chinese Medical Committee (Chung-hua I-hsueh Hui), this drug was passed through a rice water infusion and honey pills (mi-ch'eng-wan) were added; it given in daily doses of seven or eight grams for 25-35 consecutive days. As can be seen from reports on 394 cases, it is highly effective in treating early, intermediate, and late stages of schistosomiasis, and is more than 80% effective on a short-time basis. However, its toxicity is very high and seriously injures the optic nerve to the extent that there is danger of loss of sight and death.

The Anhwei Medical Academy Bufo Gargarzans L. Research Group reported (1958) on observations of the effectiveness of the drug in 107 cases of schistosomiasis and on systematic animal experiments conducted. They have shown that Bufo Gargarzans L. is definitely effective in chronic, early and late schistosomiasis and experimental schistosomiasis in animals, but that the toxicity is very high, and can produce serious symptoms of nervous system toxicosis, and may even cause death. Bufo Gargarzans is safe within only relatively low limits according to the results obtained from the animal experiments. However, since it is very effective when taken orally, and can be used in all stages of the disease, we may not lose a very hopeful drug for the treatment of schistosomiasis if research can be furthered.

With the above we have introduced a number of effective vermicides drawn from our medical records and those developed directly from clinical use. Some of these, such as Huo-hsueh Sha-ch'ung Wan, and Bufo Gargarzans L. have, together with clinical observations, been used in animal experiments, and it has been shown that they have a definite vermicial action in the animal body. Aside from this, since the establishment of our nation, 300 kinds of Chinese drugs have been tested in vitro, and 500 in vivo culture. A number of drugs have been discovered which are capable of destroying schistosoma in the body.

For example:

1. Seaweed (hai-tsao) Laminaria japonica Infusion Paste:

This is compounded of seaweed and *Laminaria japonica*. According to a report (1958) by the Shanghai Medical Academy, it was discovered through experiments on experimental schistosomiasis in rabbits that this preparation was highly effective in reducing the parasite count, and was also markedly beneficial for the pathological changes that had occurred in the animals' livers. Future research is required to determine whether the drug inhibits the immature parasite or kills the immature and adult forms and has a special protective action on the liver.

2. *Cucurbita pepo* seeds: These are the seeds of the pumpkin of the family Cucurbitaceae and were originally used as a treatment for tapeworm. Recently, according to a report (1958) by the Chekiang Branch of Academia Sinica, the results of systematic animal experiments clearly show that pumpkin seed taken orally is effective in the prevention and treatment of experimental schistosomiasis in mice. Each mouse received three grams of pumpkin seed orally daily for 28 days. There was 95.77% decrease in parasites. The animals were 64.71% lacking in parasites, and 76.47% lacking in female parasites. It was discovered that female schistosomes are quite sensitive to the drug. If a Tartar emetic was used together with pumpkin seed in treatment of schistosomiasis in animals, it raised the effectiveness of the Tartar emetic.

According to a report (1958) by the Pediatrics Department of the Shanghai Medical Academy No.2 and the Shanghai Municipal Children's Hospital, pumpkin kernel paste was used in treating 27 cases of schistosomiasis, and after three to four weeks of treatment, body temperature fell, and the general condition markedly improved. Aside from this, pumpkin seed is also effective against late schistosomiasis. According to a report (1959) by the Chia-hsing Schistosomiasis Prevention and Treatment Hospital in Chekiang, they used a pumpkin seed powder to treat 69 cases of late schistosomiasis, and pumpkin seed powder broth to treat 41 cases. The results of the latter treatment were as follows. Aside from subjective symptoms in which there was general improvement, body weight increased in 81.1% of the cases except those with a high degree of ascites), spleen size shrunk in 42.3%, abdomen size decreased in 40.5% and hemochrome (Hsieh-se-su) increased in 73.6%. In the 69 cases treated with pumpkin seed powder, fecal examination following the treatment was negative in 11 cases (30.5%), and of 19 cases re-examined after one to three months, six (31.5%) were negative.

### III. Treatment of Late Schistosomiasis

The use of vermifugal treatment methods is just one aspect of Chinese traditional medical treatment of schistosomiasis. One major aspect is the use of a comprehensive treatment of the entire body, based on the principles of treatment according to discrimination of symptoms (*pien-cheng shih-chih*). This type of treatment is of importance in the patient's regaining of body strength and working ability. The "*pien-cheng-lun chih*" is of especial help to those who cannot take antimony preparations. This type of treatment does not have as its object the blood fluke, but rather, it is directed against the complicated

pathological and physiological changes that the blood fluke brings about in the body. Consequently, it is based closely on the constitutional and clinical picture of the patient. For example, methods of either attack first, repair later, or repair first, attack later, or attack and repair together are used to arrive at a removal of abdominal fluid, shrinking the liver, improving liver function and increasing body strength in the treatment of ascites and liver enlargement. This has important significance in schistosomiasis.

1. Removal of Abdominal Fluid: There are many prescriptions for removing the ascites of late schistosomiasis. In recent years, satisfactory therapeutic results have been obtained with several proven to be effective through actual clinical observations.

(a) Chia-chien Wei-ling wan and Han-se-chiang-fan-wan: Chia-chien Wei-ling Pills are composed of the following: *Atractylis lancea* var. *ovata*, *Magnolia obovata*, *Alisma Plantago* var. *parviflorum*, *Cinnamomum loureirii* nees, *Ilex macropoda*, *Sinomenium acutum* Redh et Wils., *Eucommia ulmoides*, and *Ligusticum acutilobum*. It is adapted for use in late schistosomiasis for those suffering from gastro-intestinal weakness, injury to liver and kidney function, ascites, and digestive hindrances. Han-se Chiang-fan uses croton-oil bean and red alum added to chia-chien wei-ling pills, and is suited for liver sclerosed ascites (negative ascites) in schistosomiasis, heavy, slow, or weak pulse, and in other progressive inflammatory changes.

According to a report (1958) from Hunan Province, 471 cases of late schistosomiasis were treated using these two compounds in Yuan-chiang, Han-shou, and Ch'ang-te Hsien. The course of treatment was in general as follows: three to six days for mild ascites, six to ten days for a medium degree of ascites, and ten to fifteen days for a high degree of ascites. The short-term effectiveness, except in two cases in which results were not seen, was 99.6% effective in eliminating ascites in the remaining 469 cases. In follow-up examinations of 488 patients two to eight months after treatment with these drugs, a recurrence rate of only 7.8% was revealed. It was also markedly effective in improvement of symptoms and in shrinkage of liver enlargement. Clinical experiences indicate that these two prescriptions must be used together. The chia-chien wei-ling pills should be taken before eating, and the han-se Chiang-fan pills two hours after eating. After the ascites have subsided, one should proceed according to the principle "great accumulations being bad, the greater half should be weakened and stopped," and discontinue use of han-se Chiang-fan pills, and continue to use chia-chien wei-ling pills in order to strengthen the effectiveness of the treatment.

(b) Fu-fang Fang-chi Huang-ch'i Pills: The following are used to compound them: Northern *Astragalus reflexistipulus*, Chinese *Cocculus thunbergii*, *Atractylis lancea* var. *ovata* formalyrata, *Hovenia* fruit, *Pachyma cocos*, *Alisma plantago* var. *parviflorum*, *Tan-fu-p'ien*, *Cinnamomum loureirii* nees, *Ephedra vulgaris*, and northern *Ssarum sieboldi*. This drug is suitable for injuries to the heart and kidneys, spleen and stomach yang deficiencies, abdominal enlargement, general body

swelling, yellow-red and infrequent urine, and deep, fine pulse of late schistosomiasis.

According to reports by the Hunan Province Schistosomiasis Prevention and Treatment Research Laboratory and the Hunan Medical Academy on observations on 23 cases, the majority of the patients, after three to seven days of this drug therapy, experienced an increase in urine volume, a lessening of abdominal swelling, an improvement in appetite, and a gradual recession of ascites. Ascites were completely removed in 19 cases, an effectiveness of 82.6%. 18 cases left the hospital completely cured after receiving a three day course of antimony treatment. According to the statistics obtained from Hsiang-tan-chuan in Hunan, the prescription was used in the general treatment of 571 cases, and, in general, urine volume increased, ascites disappeared, and satisfactory therapeutic results were obtained after taking the drug from three to seven days.

(c) Ch'ien-chin-tzu and Hsiao-shui Pills: Ch'ien chin-tzu is the seed of a plant of the family Euphorbiaceae, and is a drug used as a diuretic and swelling reducer. According to a report (1956) by Ch'eng Shen-chih (程慎元) et.al., the use of an oral dose of 8.3 to 8.5 grams of Ch'ien-chin-tzu per treatment in 11 cases of late schistosomiasis resulted in rapid disappearance of ascites and shrinkage of enlarged liver and spleen. Hsiao-shui pills are compounded of the three drugs Hei-pai-ch'ou [*Pharbitis nil chois.*?], *Inula Helenium L.*, and Wei-kan-sui. It is effective in driving out fluid and reducing swelling. According to reports (1958) by the Hupei Province Parasitic Disease Research Institute Hospital, and the Hupei Yang-hsin Hsien Schistosomiasis Prevention and Treatment Station, 77 cases of late schistosomiasis were treated with either Ch'ien-chin-tzu ground up and made into an oral preparation, or an oral dose of Hsiao-shui pills. The results were a complete disappearance of ascites in two to three weeks in cases with a high degree of ascites, one to two weeks in medium degree, and one week in mild cases. Appetite improved in 44 cases among these, aside from two in which treatment was stopped because of a fever reaction. The remaining 42 were given a three day antimony treatment following the removal of the ascites. They completed the course of treatment and were completely cured.

(d) Pan-pien-lien (*Lobelia radicans*): This is a plant of the family Campanulaceae. According to a report (1956) by Wu I-sheng (吳益生), and Chih Kuo-chu (支國樞), they treated 40 cases of late schistosomiasis by giving a 10-15% decoction of pan-pien-lien orally. After taking the drug, there was an increase in urinary output in 92.5% of the patients, and removal of ascites in 77.5%. In addition, a shrinkage of the spleen and improvement in liver function were also seen. According to a report (1956) by the An-ch'ing Chuan-shu People's Hospital, a pan-pien-lien decoction was used to treat 100 cases of liver sclerosis and ascites in late schistosomiasis. After undergoing about a month's treatment, 89% were improved, and ascites were completely removed in 69%. Body strength recovered, and it was not long before they could participate in physical labor. In the course of treatment, 84% experienced an

increase in urine output. Re-examination of 42 cases after three to ten months revealed no recurrence of symptoms in 66.6% of the cases, a recurrence of ascites in about 25%, among which seven cases re-entered the hospital for treatment, with improvement resulting in five cases. This indicates that the long-term effectiveness of pan-pien-lien is quite good, and re-treatment is effective in cases of recurrence. According to a report (1958) on animal experiments conducted by the Anhwei Medical Academy Pharmacology Research Group, oral pan-pien-lien infusions had a marked diuretic action in normal white mice, and also stimulated the excretion of chlorides in the urine. It also had a diuretic action when given intravenously to anesthetized dogs. There was, at the same time, a drop in blood pressure. This also demonstrated that the hypotensive factor and the diuretic factor were not the same. The results of the experiment indicate that pan-pien-lien is of low toxicity, and it can be used over a long period as a diuretic without producing any toxic reaction.

(e) Such common grass drugs among the people as fu-shui-ts'ao, root of *Daphne genkwa*, Lung-hu-ts'ao (devil-tiger-grass), *Sapium sebiferum* roots and bark, *Lagenaria vulgaris* ser., and ch'ung-sun. These are definitely effective in the ascites of schistosomiasis. According to various clinical reports, with oral use of these drugs the ascites disappear in the majority of patients.

2. Reduction of liver and spleen enlargement: Satisfactory results have also been obtained in liver and spleen enlargement in late schistosomiasis through the medium of the "treatment according to discrimination of symptoms" ("pien-cheng shih-chih"). There are many prescriptions used, and we will present some of these below:

(a) Liver-Spleen Reduce Swelling Pill: It is compounded of the following: tips of *Ligusticum acutilobum*, *Cnidium officinale*, peach kernel, red hibiscus, seeds of *Hovenia dulcis*, *Curcuma Longa* L., *Paeonia moutan* Sims, *Ilex macropoda*, *Pteropus Pselaphor* Lay., *Piper Cubeda*, *Piper Longum* L., Ch'ai-hu, and *Melia azedarach* L. In Ch'ing-p'u Hsien, Kiangsu (1956) this drug was used as the major treatment for 15 cases of liver spleen enlargement from late schistosomiasis, and clearly effective results were obtained. After this (1957), it was used in coordination with *Trionyx sinensis* Wiegmann decoction pills, *Inula Helenium* L. + *Areca catechu* pills, Chou-ch'e pills, Wu-ling-san (pill), Chin-kuei Shen-chi pills, and Fu-tzu li-chung pills, with treatment being divided into three categories -- for liver and spleen enlargement, and for ascites. In observations on 38 patients, varying degrees of improvement were seen in the symptoms, in general body condition, and in biopsy results. Appetite and working ability recovered. Liver softening and spleen shrinkage were also marked. In 38 cases of spleen enlargement, there was shrinkage in 37 cases after taking the drug. In 27 cases of liver enlargement, there was softening after taking the drug, and shrinkage in 13 cases. When observations on the long-term effectiveness of the treatment were made after six months, all had maintained the effects seen after treatment, or had gradually improved. All of the patients were able to participate in physical labor.

(b) Chia-chien Pieh-chia Chien Pills: These are compounded of the following: *Trionyx sinensis* wiegm, *Scirpus maritimus*, *Artemisia*, Bivalve, *Pteropus Pselaphou* Lay., ch'ai-hu, Cassia branch, white peony (pai-shou), *Ilex macropods*, *Ligusticum acutilobum*, peach kernel, ground beetle larva, *Boswellia carteri*, and *Commiphora myrrha*. According to observations on 23 cases of liver-spleen enlargement from schistosomiasis in Han-shou Hsien, Hunan Province (1958), there were varying degrees of shrinkage following this drug treatment in 18 cases of liver enlargement and 21 cases of spleen enlargement.

On this basis in Hsiang-yin Hsien they removed the *Pteropus Pselaphou* Lay., the white peony, *Ilex macropoda*, *Boswellia carteri*, and *Commiphora myrrh* from the above prescription and added *Paeonia moutan* sims., Red hibiscus, *Manis pentadactyla*, *Hirudo nipponica*, Chinei-chin [dried intestinal membrane of a chicken], seaweed, northern *Astragalus reflexistipulus*, and millet shoots. This "Fu-fang Pieh-chia Chien Pill" was used in 28 cases of liver and spleen enlargement, and observations showed 30 days after treatment that the spleen enlargement had been completely reduced in 11 cases. Softening and shrinkage were also seen in the remaining 17 cases.

The Lin-chiang Hsien group removed pin-leng-tzu from the Chia-chien Pieh-chia Chien Pills, and added *Paeonia moutan* sims and *Croton tiglium* L. to make up "han-se pieh-chia-chien pills." They used this on patients suffering from liver-spleen enlargement and ascites, and according to the results of clinical observations on 70 cases, they found that liver enlargement disappeared in 51.4%, shrinkage in 30%, and softening in 18.5%. In spleen enlargement, there were varying degrees of shrinkage in 81.3%, and softening in 12.8%. It was ineffective in 5.7%. Han-se Pieh-chia-chien pills were also effective in medium and mild degrees of ascites, with short-term effectiveness reaching 92%, and long-term post-treatment effectiveness as well.

(c) Pin-leng-tzu (Bivalve) Pill: This is a drug compounded of bivalve, *Manis pentadactyla*, *Myliittapidescenfor*, *Hirudo nipponica*, Peach kernel, *Artemesia*, *Scirpus maritimus*, *Alisma plantago* var. *parviflorum*, *Hovenia* fruit, *Atractylis lances*, var. *ovata formilyrata*, *Trionyx sinensis* wiegm., *Carpesium abreta neides* L., *Ferula scorodosma*, Ch'ai-hu, *Astragalus reflexistipulus*, *Ligusticum acutilobum*, *Paeonia alibiflora* var. *hortensis*, and seaweed. Aside from improvement in general symptoms and working strength, the drug was 50-70% effective in reducing spleen enlargement 30 days after taking the drug in 92 cases treated at the Fukien Province Schistosomiasis Prevention and Treatment Institute. Six months after treatment a follow-up examination was given, and the long term effectiveness in 45 cases was observed. This was up to 93% effective in liver enlargement reduction and 86.6% effective in spleen enlargement reduction.

(d) Chia-chien Fa-mu Pill: This is a drug compounded of *Atractylis lancea* var. *ovata*, red alum, Chiu-sha-lu-kuan, sheng-po-fan, *Magnolia obovata*, *Hovenia* bark, *Ilex macropoda*, and cinnabar. In 42 cases of liver and spleen enlargement from schistosomiasis treated in Ch'ang-te Hsien, Hunan Province (1958) there were varying degrees of

spleen shrinkage in 33 cases, and seven cases with liver shrinkage. There were nine cases in which no results were seen. Aside from this, there was marked improvement in other symptoms, an increase in erythrocytes, and a return to normal spirits and appetite.

The partial data related above is sufficient to explain that, under many conditions, the use of various Chinese traditional prescriptions can greatly improve the patient's state, i.e., increasing urine volume, reducing ascites, and shrinkage and elimination of liver and spleen enlargement, as well as stimulating the poison destroying functions of the body. Many patients who have been seriously ill and unable to leave their beds, have, after treatment with Chinese drugs, not only been able to leave their beds, but have also recovered their working ability. The advantages are extremely clear, and it is now recognized that these Chinese drugs definitely stimulate the body to overcome schistosoma, destroy its toxic products, and aid the recovery process. Moreover, the direction of future research is indicated. It may be that some of these Chinese drugs do not act directly on Schistosoma itself, but act on the toxic product of the parasite and stimulate the passage of the toxic product from the patient's body, and also have, in this way, an effect on the pathological-physiological changes wrought in the body by Schistosoma and its toxic products. Consequently, we should conduct research on parasitological drugs and on prescriptions which remove the poisons and regulate the body's pathological-physiological reactions.

#### IV. Acupuncture-Moxibustion Therapy

Acupuncture-moxibustion is also very effective in schistosomiasis. The Chekiang Province Chinese Drug Research Institute treated 54 cases of schistosomiasis, using the following acupuncture sites: Ta-ch'ui, T'ao-tao, Ko-yu, Tan-yu, Ta-ch'ang-yu, Hsiao-ch'ang-yu, T'ien-shu, and Tsu-san-li. The clinical symptoms disappeared, and short-term effectiveness of fecal ova examination was 29.6%, later gradually increasing to 40.7%. The Schistosomiasis Prevention and Treatment Group of the Research Institutes of Chinese Traditional Medicine Ministry of Health in Chia-hsing Hsien, Chekiang Province used moxibustion of the Ta-ch'ui, Chung-kuan, P'i-ken, Ch'i-hsi, and Kao-yu sites. They treated 28 cases of liver and spleen enlargement by moxibustion which brought about a reduction in liver size in 16 cases, and a reduction of spleen enlargement in 18 cases. There was also improvement in the condition of the blood and in working ability. In K'un-shan Hsien, Kiangsu Province the partition moxibustion method (Ke-chiang-ai-chiu-fa-lun) was used to treat the shui-fen, shen-ch'ueh, and kuan-yuan sites in 29 cases of ascites from schistosomiasis, and excepting two cases in which no improvement was seen, there were varying degrees of ascites reduction obtained in the remaining 27 cases.

Acupuncture-moxibustion is also effective in alleviating the toxic reactions of antimony treatment. The Chen-chiang Suburb Health Department of Kiangsu treated (1957) 32 cases with antimony reactions and headache by acupuncture of the yin-t'ang, and were completely

successful. Acupuncture of the ho-ku, nei-kuan, and shen-men sites in 27 cases produced varying degrees of effectiveness in vomiting, nausea, dizziness, headache, chest discomfort, anxiety, and insomnia. The Schistosoma Prevention and Research Group of the Research Institutes of Chinese Traditional Medicine, Ministry of Health in Chia-hsing Hsien, Chekiang, used acupuncture in 128 cases of antimony toxic reaction. This was up to 96.6% effective in 18 toxic reaction symptoms and was especially effective in such symptoms as chest discomfort, convulsions, headache, and irregular heart rate.

Acupuncture-moxibustion is definitely effective in treating all stages of schistosomiasis and in relieving toxic reactions from antimony. Since there are so many clinical instances, we have not made a detailed presentation.

#### V. Treatment by Combined Chinese and Occidental Methods.

In the struggle against schistosomiasis, the combined Chinese-occidental treatment is very important. Chinese treatment is particularly useful in treating late schistosomiasis, according to the principles of treatment of the discrimination of symptoms (pien-cheng shih-chih) -- first eliminate abdominal fluid, thus relieving the symptoms; bring about a recovery of body function in order to create conditions necessary for antimony treatment, and use various Chinese drugs to alleviate toxic reaction to antimony either during or after the antimony treatment, thereby strengthening the patient physically and bringing about his quick recovery. When critical and severe changes occur, Chinese and Occidental medicine work together to save the patient. The combined treatment method has been used in the suburbs of Shanghai in 100 cases, using various Chinese drugs to relieve the symptoms and improve the constitution. After this, 87 patients received successive antimony treatments. In 1,291 cases in Hunan Province, the conditions necessary for receiving antimony treatment were established in 80% of the cases through Chinese medicinal treatments. There are many other examples from various regions where Chinese and occidental medicine in cooperation have saved the lives of schistosomiasis patients, and have brought about a recovery of their working ability.

#### VI. Prevention

An important aspect of prevention is the extermination of the intermediate host of the Schistosomes, the snail. Aside from methods used by the masses for killing them, such as walling them off, burying them, burning them, or boiling water and chemical methods of killing them, many Chinese drugs and wild plants have been found effective in killing snails. In field experiments, it was found that a 0.1% concentration killed up to 86% of the snails within 72 hours, and a 0.5% concentration up to 97.52%. This particular plant is widely distributed, it is produced in large quantities, and can be put into wide use. Workers at the Academia Sinica have conducted research on drugs used by the masses such

as tea-leaf snail poison (Ch'a-tzu-ping-tu-shà-t'ien-lo) and pa-tou (E E) fish poison, and have shown that the sediment left over after the removal of the oil from oil-tea seeds (Yu-ch'a chung-tzu) contains a substance that kills snails. Ten grams of pa-tou per square meter will kill 95% of the snails. These same experiments also proved that the flowers and leaves of wild *Rhododendron sinense* are effective in killing snails. If 40 grams of flower and leaf are spread over each square meter, it brings about the death of from 60 to 90% of the snails. Chinese drugs and wild plants that have been found to possess snail killing properties and which are still being studied are *Sapindus Mukurosi*, wolf poison [lang-tu, a plant name], *Euphorbia helioscopia*, *Belamcanda chinensis*, K'u-ko, the Centipede Willow, and the Prince's Whip (Pa-wang pien).

The killing of the Schistosome ovum must be done after it has passed through the body and appears in the feces. New developments such as mixing feces with urine and letting it stand for a fixed period in handling human excreta used as fertilizer have found great use in the killing of schistosome ova. At the same time, in order to provide fertilizer immediately needed, chemical methods for rapid extermination of ova have been necessary. In various regions effective results have been obtained in the killing of the ova by adding to the excreta the following wild plant drugs: *Cnidium japonicum* seeds, *Buddleis japonica*, Grassy crow's head [plant name], *Stemona sessilifolia*, Wolf Poison (lang-tu), *Cercia chinensis*, and *Pinellia ternata*.

Those who work in the paddy fields or who cut grass and fish in the water must guard against being infected by Schistosome cercaria. Oil pressed from the seeds of the juniper painted on the skin has a protective action against cercaria boring into the skin for two to four hours. Pine resin by itself or mixed with other suitable prescriptions, when painted on the skin, also has a protective action. The following are effective prescriptions which have been discovered experimentally: pine resin with *Lithospermum officinale* var. *erythrorhyron* in alcohol, pine resin in alcohol, pine resin in turpentine and ethyl alcohol, pine resin and oil of *Aleurites cordata*, and *Minium* mixed with tea oil (Ch'a-yu). These Chinese drug prescriptions have been of definite value in the prevention of infection by cercaria among farmers and fishermen who must work in the water.

## VII. Conclusion

The accomplishments that have been made in the prevention and treatment of schistosomiasis clearly prove the great concern of the Party and the People's Government for the health of the people. Under the enlightened leadership of the Party and of Chairman Mao, the work of removing pestilence was begun, Chinese and Occidental medicine were joined and through its complete positive and creative development, in hardly three years, the traces of schistosomiasis have been eliminated in more than half the epidemic regions. Our national medicine has made great developments in the treatment of schistosomiasis, particularly through

the use of drugs and acupuncture in the treatment of conditions generally recognized as difficult to treat such as ascites, liver, and spleen enlargement of late schistosomiasis on the basis of the pien-cheng shih-chih. In this we have made an outstanding accomplishment. Not only have the symptoms of the patients been reduced and improved and the conditions established for antimony treatment, but the patient can quickly recover his health and working power. In the future, under Party leadership and with the united labors of Chinese and Occidental medicine, we must continue to delve into our medical heritage and struggle to eliminate schistosomiasis thoroughly and eternally!

Research Institutes of Chinese Traditional Medicine

REFERENCES

1. Kiangsu Province Health Office: "The Discrimination of Symptoms: Treatment of Three Major Symptoms of Schistosomiasis with Chinese Drugs," Kiangsu Chung-i, (5): 21-28, (6): 11-18, 1957.
2. Chekiang Province Chinese Drug Research Institute: "Observations on the Effectiveness of Acupuncture-Moxibustion Treatment in 54 Cases of Schistosomiasis," Chung-hua Chi-sheng Ch'ung-ping Ch'uan-jan-ping Tsa-chih (Chinese Journal of Parasitic and Infectious Diseases), (4): 217-218, 1958.
3. "Hunan Province Report on Chinese Drug Treatment of Late Schistosomiasis," Chung-hua Chi-sheng-ch'ung-ping Ch'uan-jan-ping Tsa-chih, (4) 219-221, 1958.
4. Department of Chinese Medicine of the Shanghai Hsu-hui Hospital: "Initial Clinical Observations on Treatment of 14 Cases of Late Schistosomiasis Ascites with the Chinese Drug Wen-pu Ch'u-shui-wan," Shang-hai Chung-i-yao Tsa-chih, (12): 18-22, 1957.
6. Wan I (万一), Li Hui-chen (李恢振), Meng Shun-t'ang (罗顺堂), Li Tzu-i (李子怡): "Han-se Chiang-fan-wan, Chia-chien Wei-ling t'ang, and Chou-ch'e-wan in Treatment of 100 Cases of Ascites of Schistosomiasis; Report on Comparative Research and Preliminary Observations," Shang-hai Chung-i-yao Tsa-chih, (12): 23-25, 1957.
7. Wu Jen-shan (吴仁山), T'ang Wan-shu (唐映书): "Report on Tu-hsi-wan in Treatment of 57 Cases of Schistosomiasis," Hsin-Chung I-yao, 8: (4) 172-174, 1957.
8. Wang Ting-huan (王定寰), Chung Ch'ang-mei (钟昌梅): "Report on Compound Betel Nut Pill (Fu-fang Pin-lang Wan) in Treatment of 103 Cases of Early, Middle, and Late Schistosomiasis," Chung-i Tsa-chih, (9): 616-618, 1958.
9. Hupeh Province Parasitic Disease Research Institute Hospital; Hupeh Province Yang-hsin Hsien Schistosomiasis Treatment and Prevention Station, "Initial Report on the Ch'ien-chin-tzu with Hsiao-shui-wan Together with the Three-Day Antimony Treatment of Late Schistosomiasis," Chung-i Tsa-chih, (10): 689-692, 1958.

10. Su-chou City Health Bureau: "Observations on Long Term Effectiveness of Compound Piper Cubeba Pills in Treating Early Schistosomiasis," Chung-i Tsa-chih, (2): 70-71, 1957.
11. Ch'eng Shen-chih(程慎之), Chang I-t'ang(張義堂) Wang ta-ch'eng(汪達成): "Introduction to Treatment of Late Schistosomiasis with the Chinese Drug Ch'ien-chin-tzu," Hsin-chung I-yao, 7: (7) 23-23, 1956.
12. Kiangsu Province, Wu-Hsi Schistosomiasis Prevention and Treatment Institute: "Initial Summary of Ch'ung-sun Hu-lu in Treatment of Ascites of Late Schistosomiasis," Chung-hua I-hsueh Tsa-chih, (5): 419-420, 1956.
13. The Chinese Communist Party, Five Man Research Group Laboratory for Prevention and Treatment of Schistosomiasis in Ch'ang-jo City: "Initial Results of Using the Chinese Drug Frog Wart Pill in Treatment of Early Schistosomiasis," Kiangsu Chung-i, (1):14-16, 1956.
14. Wang Ta-ch'eng(汪達成), Chang I-t'ang(張義堂): "Introduction to Hsiung-huang Wan in Treatment of Early Schistosomiasis," Kiangsu Chung-i, (2): 34, 1956.
15. Li Wei-hsiung(李維熊): "Clinical Observations on the Chinese Drug Tu-hsi-wan," Kiangsu Chung-i, (2): 22-23, 1957.
16. Ch'ien Yuan-lung(錢元龍): "Initial Report on Musk Wood (She-hsiang mu-hsiang) Oil in Treating Late Schistosomiasis," Kiangsu Chung-i, (2): 24-28, 1957.
17. Ch'en Chun-i(沈君宜): "A Research Report on Hsiao-shui Tan in Treatment of Late Ascites," Kiangsu Chung-i, (4): 23-24, 1957.
18. Wu Kuo-sen(吳國森): "Preliminary Information on Acupuncture-Moxibustion Treatment of Antimony Reaction," Kiangsu Chung-i, (4):25, 1957.

## CHINESE TRADITIONAL MEDICAL ACHIEVEMENTS IN TREATMENT OF MALARIA

Following is a translation of an article by the Research Institutes of Chinese Traditional Medicine in Ch'ing-chu Chien-kuo Shih-chou-nien I-hsueh K'o-hsueh Ch'eng-chiu Lun-wen Chi, Volume 1, Peiping, December, 1951, Pages 326-330.

Malaria has been a commonly seen infectious disease in our country. It is distributed largely over our southern provinces, and gravely threatens the health of the working people. After the Liberation, because of the concern of the Party and the Peoples Government for the health of the people, and under the glorious light of the Chinese Traditional Medicine Policy, Chinese medicine, in the prevention and treatment of malaria, has found a definite use, and has made excellent accomplishments.

### I. Chinese Traditional Medical Knowledge Concerning Malaria

We discovered malaria early in our history. We had records concerning it as far back as the 12th Century B.C. in the Book of Rites. The first Chinese book on medicine was the Canon of Internal Medicine of the Yellow Emperor (Huang-ti Nei-ching) (circa 403-221 B.C.), which contained a quite complete discussion on malaria. It first made a classification, and then brought out concrete methods of treatment. After the Huang-ti Nei-ching, new information and developments concerning the disease continued in medical literature through the ages. After the Liberation, Chinese traditional literature on malaria was sought for throughout the country, and new investigations on the disease were initiated. The general knowledge on Malaria was as follows:

1. The major causative factor in the disease is an external infection, an "evil ch'i" (hsieh-ch'i), that is, it is known that the causative agent emerges from the natural environment. The direct cause is a deficiency and weakness of "regulatory ch'i" ("cheng-ch'i"). That is, there is an insufficiency of body regulation of function or of resistance to attack by disease. An indirect cause is from a lack of regulation in eating and living habits, or from infection by another disease, which influences body strength, and makes it easy to become infected by this disease. Among these three, Chinese medicine regards the direct cause as the most important. It is recognized that if the body's "regulatory ch'i" is strong, then infection by an "evil ch'i" will not necessarily produce malaria. On the other hand, the main reason why

"evil ch'i" can bring about disease in the body because of deficiency and weakness of the "regulatory ch'i".

2. The spread of the diseases is related to season, region, contagion and adaptive powers of the body. In regard to the seasonal factor, the epidemic seasons of the disease were mentioned in early writing such as the Book of Rites, the Li Chi, and the Huang-ti Nei-ching. The most important epidemic seasons were summer and autumn. In regard to the regional factor, historical medical texts indicate that the major region of prevalence is the southern region. In regard to the factor of contagion, historical Chinese traditional medical literature indicates that the disease could spread, and moreover it could lead to large epidemics. Traditional Chinese medicine has referred to malaria in epidemic form as pestilential malaria, and recognizes that is related to wars and large scale population movements. Chinese medical literature includes such books as Ching-yueh Ch'uan-shu (A.D. 1640), and Cheng-chih Chun-sheng (A.D. 1597-1607) in which there are concrete records. It is recognized that those who are newly arrived in regions where malaria is prevalent can become easily infected. After living in an area for a long time, one gradually becomes adjusted to the environment, and is rarely infected.

3. In classifying the disease, it is differentiated according to the period of attacks in some traditional Chinese medical literature. If there are daily attacks, it is called one day malaria (i-jih-yao). If the attacks occur every other day, it is called alternate day malaria (chien-jih-yao). If the attacks occur every three days, it is called three day malaria (san-jih-yao) or three yin malaria. Some classify it according to clinical symptoms. If it follows the typical pattern of symptoms, it is called normal malaria (cheng yao). If there is first a fever, and then chills, or only a fever without chills, it is called fever malaria (wen-yao). If chills predominate over fever as a symptom, or there are just chills with no fever at all, it is called female malaria (p'in-yao). If there is a fever, and no chills, with marked emaciation and other signs of decline, it is called malignant malaria (tan yao). If there are fever and chills which do not conform to an apparent pattern and occur and stop abruptly, or there are confusion and delirium, or difficulties in speech, this is a serious form of the disease found principally in the hot, damp regions of the south, and is called epidemic malaria (chang-yao). If the attacks are of long duration, lumps appear below the ribs, and there is swelling and pain, then it is called malaria mother (yao-mu). If it is a malaria in which recurrent attacks can be brought on by even light work, it is called work malaria (lao-yao).

According to modern medical knowledge, chien-jih-yao and san-jih-yao are the same as tertian and quartan malaria, respectively. I-jih-yao resembles generally mild forms of malignant malaria, while wen-yao and tan-yao may be considered as atypical forms of common malaria, or may be considered malignant malaria. Chang-yao and p'in-yao resemble the violent attacks of malignant malaria. Yao-mu is classified with the spleen enlargement of chronic malaria.

4. The common forms of treatment for the disease are drugs and acupuncture. Drug treatment differs according to the type of malaria. In cheng-yao the major aspect is ho-chieh (和血). In wen-yao, the major principle is purification of heat. In tan-yao the major factor is nourishment of the yin and purification of the heat. In p'in-yao the major factor is the dispelling of cold with heat. In Chang-yao, where changes in clinical symptoms are very great, treatment may be selected from the above methods according to the symptoms. In lao-yu, the major factor is supplementing the deficiency (hsu). In dealing with sub-coastal lumps, the methods of "hsing yu" (causing clots to move) "p'o-chi" (breaking the accumulation), and "jan chien" (softening the hard) may be used. In addition, there is a method of obstructing malaria (chieh-yao). Drugs commonly used clinically in obstructing malaria are Orixia japonica, Amomum cecum Roxb., betel nut, arsenolite and hsiung-huang  $[As_2S_3]$ . Commonly used prescriptions for obstructing malaria, are Ch'ang-shan-yin (Orixia japonica drink), Obstruct malaria seven gem drink (Chieh-yao ch'i-pao yin), Sheng-chin-wan, and Hsiung-huang  $[As_2S_3]$  powder.

In acupuncture-moxibustion treatment, the commonly used sites are the ta-ch'ui, t'ai-tao, chien-shih, and hou-ch'i as principal sites, and the wei-chung, kuan-yuan, fu-liu, shen-yu, and tsu-san-li as secondary sites. Clinically, the most important are the ta-ch'ui, and the t'ao-tao sites, which may then be co-ordinated with other sites. In cheng-yao, the ta-ch'ui and t'ao-tao are effective. In wen-yao and tan-yao the wei-chung may be added. In chang-yao patients with speech difficulties, the jen-chung, and ho-ku may be selected. In lao-yu, acupuncture and moxibustion may both be used at the kuan-yuan, ming-men, shen-yu, and fu-liu sites. After the malaria attacks have been stopped, frequent moxibustion at the tsu-san-li site can stop recurrence of attacks. In yao-mu, there are those who advocate moxibustion of the ch'i-men and chang-men sites, although there are some who say that it is not necessary. As in treatment of lao-yao, yao-mu will gradually recede with frequent moxibustion of the tsu-san-li site. Chinese medical doctors have known through history since the time of the Huang-ti Nei-ching that the treatment must be begun one to two hours before the malaria attack. The depth to which the needle is to be inserted will depend on the fatness or thinness of the body, and the depth should be that point where the patient feels an ache or becomes numb. Patients with deficiency and weakness, should assume a reclining position at the time of acupuncture in order to avoid needle-dizziness.

## II. Accomplishment in Prevention and Treatment

A. Treatment: The accomplishment in recent years in the treatment of malaria by Chinese medicine, as summarized from present data are principally in the following three categories:

1. On the basis of research by our predecessors, we have further confirmed the effectiveness of Orixia japonica in treating malaria; moreover, we have solved problems that have remained unresolved for many

years regarding the secondary effects of the drug (e.g. nausea, vomiting).

From 1952 to 1953, the Chungking First Chinese Hospital has used oral compounds containing *Orixa japonica* (infusions of *Orixa japonica* and *Pinellia ternata*) in treating 28 cases of malaria, curing all. The fever in malignant malaria receded in an average of 2.5 days, and plasmodium disappeared from the blood corpuscles in 3.5 days. The majority of patients with tertian malaria did not have a recurrence of attacks after taking the drug, and plasmodium disappears from the erythrocytes in 3.4 days. Among the 28 malaria patients who took the *Orixa japonica* infusion, there were three who developed a mild degree of vomiting.

In August through September of 1958, the Ch'eng-tu Chinese Medical Hospital used *Orixa japonica* - betel nut compound prescription (made from a decoction of *Orixa japonica* and betel nut) to treat 26 cases of malaria -- six cases of tertian malaria, three cases of quartan malaria, and one case of malignant malaria, four cases in which plasmodia were discovered but no classification made, 11 cases with negative blood smears, and one case with negative blood test and in which clinical symptoms were relied on. The results were that of the 26 cases, clinical symptoms were brought under control in 24 cases after taking one to two doses of the drug, and after two doses examinations for the presence of plasmodia were negative. Among the 26, there were four cases in which the drug induced vomiting, but the majority of the patients did not develop either nausea or vomiting.

The Chekiang Lin-an Sanatorium used a *Orixa japonica*-ch'ai-hu mixture (a decoction of *Orixa japonica*, *Pinellia ternata*, and ch'ai-hu) in treating malaria, and in 1958 treated 44 cases, dividing them into three groups to make controlled observations. The first group consisted of 11 patients in whom treatment with other anti-malarial drugs such as quinine, atabrine, paludrine, and quinine compounds had proved ineffective. They were treated in one to two courses of treatment, but the symptoms still could not be controlled, and plasmodium could still be found in the blood smears. The second group consisted of patients in whom anti-malarial drugs had not been previously used. In these two groups the only treatment used was the *Orixa japonica*-ch'ai-hu mixture. The third group consisted of 20 cases in which only quinine was used. This group acted as the control group. The results of the observations were as follows: In terms of control of symptoms in the first and second groups (using only the *Orixa japonica* and ch'ai-hu mixture) the symptoms were entirely controlled. In the third group (control group using only quinine) attacks were controlled in 13 cases. Of the three groups, the second was the best, the attacks being controlled within 24 hours. The next was the first group, with the third group being the most irregular. In terms of the disappearance of plasmodia from the blood, the first and second groups were also the best, with the disappearance occurring soon after taking the drug, although the plasmodia disappeared most quickly in the second group. The third group was the most irregular, and in seven cases plasmodia still persisted in the blood after completing the full dose of treatment. In terms of the percentage of recurrence, in the first and second groups, the longest period without recurrence was 125 days, the shortest 76 days.

In the third group, the longest period was 137 days, the shortest 82. The results of the observations show that the recurrence was highest in the first group of 11 cases with three cases of recurrence. The third group was next, with four cases of recurrence from the 20 cases. The second group was the best, because there were no instances of recurrence. As for secondary reactions, among those in the first and second groups taking the *Orixa japonica*-ch'ai hu mixture, there were a small number who experienced mild nausea and dizziness, but these were not serious. It was not necessary to stop treatment in any case because of secondary reactions. Secondary reactions in the third group were much greater than in the first and second groups.

The Hunan Province Hsin-hua Hsien Yun-ch'i Diagnostic Institute has used *Orixa japonica* injections in treating malaria. An injection fluid is made from *Orixa japonica* in the way that cooking alcohol is made in farming villages, and injections are given intramuscularly. In June and July 1957 this institute used this injection fluid to treat 45 cases of malaria. Among these there were 43 in whom symptoms disappeared after one injections, the remaining two requiring two injections. After this the symptoms were quickly controlled. There were two cases who received injections just at the onset of an attack, and after the injection, the attack was quickly controlled. Not only were *Orixa japonica* injections highly effective, but there were no secondary reactions, such as nausea and vomiting. In 1958, the Hunan Province Hsin-hua Hsien Health Department extended the use of this method to the entire hsien, treating more than 3500 cases, again corroborating the great efficacy of the treatment.

From the above data it can be seen that the anti-malarial activity of *Orixa japonica* is definite, and that in mixture with *Pinellia ternata*, betel nut, and ch'ai-hu, not only is its anti-malarial activity enhanced, but secondary reactions of vomiting and nausea can also be decreased. It is superior to quinine, and when used in patients who have not taken such anti-malarial drugs as quinine, its efficacy is especially apparent. When used in patients who have already had quinine type drugs, it also brings about a rapid control of symptoms, a disappearance of plasmodia, although it is somewhat irregular in preventing recurrent attacks.

The making of the *Orixa japonica* injection fluid by the Hsin-hua Group is an outstanding accomplishment. Not only is the method simple and the effects quick, but it is very economical.

2. The effectiveness of the malaria powder secret prescription in popular use has been studied, and improvements have been made on the original prescription, bringing about a much wider spread of the original formula.

The Szechuan Health Station has used malaria powder to treat 290 cases of malaria. They have shown that it is 80% effective in tertian malaria. It is of uneven effectiveness in malignant and quatern malaria, and it is also of uneven effectiveness in killing plasmodia.

This formula has also been used in some malaria prevention stations in Yunnan Province, and according to reports, it has been highly effective. This station made clinical observations on 32 cases.

After two oral treatments with the drug, symptoms disappeared in more than half of the patients, and blood smear of plasmodia was negative. After four treatments, the plasmodia disappeared in all cases, the symptoms stopped, and there was not one recurrence. Later, this station, in its method of using the malaria powder, changed from the nose plug method to the method of affixing it to the navel. According to this station's report, similar results can be obtained by the latter method.

From the above data it can be seen that malaria powder is especially effective in treating tertian malaria. Malaria powder is low in cost, simple to use, and secondary reactions are negligible. It can also be used in pregnancy, and is well worth being put into wide use. As to the mechanism whereby malaria powder combats the disease, we do not have at present a full explanation. This still awaits further research.

3. Acupuncture-moxibustion has also been very effective in treating malaria, and has been put into wide use. The Kiangsu Su-hua Peoples Hospital has used acupuncture to treat 50 cases of malaria, with 80% effectiveness. In general, after one to four treatments, plasmodia disappear from the blood smears.

The Shanghai Municipality Hsu-hui Hospital has used acupuncture in treatment of six cases of malaria, stopping the attacks in three cases after one treatment, in two cases after two treatments, and in one case after five treatments. After the attacks were stopped, there were no plasmodia found in the blood smears.

In 1958, Hsieh Hsi-liang (謝錫元) reported on the use of acupuncture in treating 69 cases of malaria. Among these, 51 were cured after one acupuncture treatment, 15 after two treatments, and three after three treatments. Upon later inquiry, it was found that there was not one instance of recurrence among the 69 cases.

Reports on acupuncture-moxibustion treatment of malaria are numerous and can be widely seen in the many regional publications. With the above, we have merely presented a few examples; however, it can be seen from this that acupuncture-moxibustion is definitely effective in treating malaria, and is worthy of further research. The principle of its effectiveness in treating malaria is recognized by Chinese medicine as being principally that, after undergoing acupuncture, one can "regulate the ch'i and the blood", and "disperse disorder and return the normal". Ma I-lin (馬亦林) of the Chekiang Medical Academy Infectious Disease Research Group recognizes that "the attacks in malaria are largely due to the release into the plasma and organs of the metabolic products of the plasmodium parasite in the erythrocyte, which brings about disorder in the central nervous system control and produces anaphylactic reactions to the foreign bodies. The means by which acupuncture treats malaria is that after given skin points or given nerves have been punctured, the cerebral cortex function is maintained, and the body defense mechanisms are strengthened; consequently no anaphylactic reaction is produced. The symptoms are inhibited, and the body does not tolerate the continued existence of the plasmodia. It is especially the increase in phagocytic

activity of the cells of the reticuloendothelial system that brings about a gradual extermination of the plasmodia." This statement is only theoretical and awaits further research.

#### B. Accomplishments in Prevention

Chinese medicine, in the prevention of malaria, takes as its major emphasis the strengthening of the body's defenses against the disease and the elimination of the hidden causes. Major attention is given to living habits, eating, drinking, and general living conditions. There have been several new developments in recent years in the prevention of malaria. Definite accomplishments have been made in using drugs as health protectors and for the stopping of recurrent attacks of the disease. In 1957, the Kiangsi Province Hsin-feng Hsien Health Bureau used Ch'ang-chiao pills for observation on malaria prevention, treating 353 cases. Attacks ceased in those who were ill. The pills were used for prevention in 2,267 people, and upon inquiry it was found that nine of these later came down with malaria. This Bureau also used malaria pills in treating malaria and in preventing recurrence. It was used in 21 cases, controlling attacks within two to three days. There was not one case of recurrence. It was also used in treating 64 cases with histories of recurrent attacks. After taking the drug, the attacks were basically controlled. There were only two cases in which attacks continued after the regular course of treatment had been completed. After taking the drug for two to three days, the symptoms were then controlled.

Certain Malaria Prevention and Treatment Stations in Yunnan Province Lu-hsi Hsien in 1958 used the aforementioned malaria powder as a preventative treatment for recurrence of malaria attacks, treating 1,606 people. After eight months of observation, there were no instances of recurrent attacks.

From the above reports it can be seen that the effectiveness of drugs in preventing malaria and in preventing recurrence of attacks is very high. What is worth being pointed out is the fact that of the above three drugs, with the exception of the malaria powder, all contain *Orixa japonica*. In Chinese medical literature, *Orixa japonica* has been classed as a malaria obstructant (chieh yao), and in ancient writings it was rarely mentioned as being used for protection of health and prevention of recurrent attacks. In Kiangsi and other areas, the use of Ch'ang-chiao pills and malaria pills for prevention has met with initially effective results, and has enriched the knowledge of Chinese Medicine in respect to malaria prevention, and has also broadened the use of *Orixa japonica* as a means of treatment. This is a new accomplishment of traditional Chinese treatment of Malaria since the liberation.

Research Institutes of Chinese Traditional Medicine

REFERENCES

1. Chungking First Chinese Hospital: "Knowledge of Malaria in our National Medicine, and an Introduction to the Antimalarial Drug, Orixia japonica," Chung-i Tsa-chih, (9) 1956.
2. Feng Yu-lung (馮玉龍): "A Comparison of Orixia Japonica-ch'ai hu and Quinine in Treatment of Malaria," Chekiang Chung-i-yao, (8) 1958.
3. Yunnan Province Te-hung-t'ai Tsu Ching-p'o Tsu Autonomous Chou Malaria Prevention and Treatment Station: "Observations on the Effectiveness of Malaria Powder (wen-fen) in Treating Malaria and in Preventing Recurrence of Attacks," Chung-i Tsa-chih, (4) 1959.
4. Hsieh Hsi-liang (謝錫亮): "Report on Acupuncture-Moxibustion Treatment of 69 Cases of Malaria," Chung-i Tsa-chih, (3) 1958.
5. Hsin-feng Hsien Health Bureau: "Experiences with the Use of Chinese Drugs for Prevention of Malaria in 2,330 People in Hsin-feng Hsien," Kiangsi Chung-i-yao, (7) 1958.