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SCIENTIFIC INFORMATION REPORT
Chinese Science (13)

This is a serialized report consisting of unevaluated information prepared as abstracts, summaries, and translations from recent publications of the Sino-Soviet Bloc countries. It is issued in six series. Of these, four, Biology and Medicine, Electronics and Engineering, Chemistry and Metallurgy, and Physics and Mathematics, are issued monthly. The fifth series, Chinese Science, is issued twice monthly, and the sixth series, Organizations and Administration of Soviet Science, is issued every 6 weeks. Individual items are unclassified unless otherwise indicated.

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BIOLOGICAL AND MEDICAL SCIENCES

PHYSIOLOGICAL SOCIETY HOLDS CONFERENCE -- Peiping, K'o-hsueh T'ung-pao, No 8, Aug 62, pp 47-48

The China Physiological Society's Scientific Conference on Physiology and Pharmacology was held in Shanghai on 25 June-2 July 1962. Over 80 delegates, representing research organs and higher schools in Shanghai, Peiping, East China, North China, Southwest China, and West China, attended.

Many reports were presented by noted physiologists and pharmacologists before the conference meeting in general assembly. A few are mentioned below:

Feng Te-p'ei's (7453/1795/1014) "Advances in General Neurophysiology" reviewed advances in research during the past decade on excitation and conduction of nerve and muscle fibers and on the transmission of impulses across synaptic junctions.

Chang Hsiang-t'ung's (1728/7449/2717) report, "Trends in the Development of Central Nervous Physiology," reviewed the discovery of the reticular structure, international research developments in the past decade on higher nervous activity, the use of microelectrode techniques in neurophysiology, the functions of dendrites, and various schools of thought on these subjects.

Chang Hsi-chun (1728/6932/6874) gave a detailed report on recent developments in various countries on research concerning neurohumoral regulation of heart and blood vessels in his paper entitled "New Developments in Cardiovascular Physiology."

Chao I-ping's (6392/0110/3521) "Studies on the Electrophysiology of Higher Nervous Activity" reviewed recent achievements in this respect.

New findings presented by Chang Ch'ang-shao (1728/2490/4801) in his report, "Some Drugs That Influence the In Vivo Metabolism of Pyrocatechol Amine," provided a possible explanation of the mode of action of many drugs and also offered a new system of classification for drugs based on their effects on the mediators in nervous conduction.

Speaking on "Synergism and Antagonism in Psychopharmacology," Chin-Yin-ch'ang (6855/5593/2490) discussed problems of nervous stimulation and inhibition in psychopharmacology and the combined effects of psychopharmacological drugs administered simultaneously.

Others who presented reports in the general meetings were: Ts'ai Ch'iao (5591/5062), Hsu Feng-yen (1776/0023/1750), Shen Chi-ch'un (3088/7221/2504), I Chien-lung (2496/6015/7893), Wang Chih-chun (3769/1807/1971), Liu Shih-hao (0491/1102/6275), Liu Yu-min (0491/5148/3064), Sung Chen-yu (1345/2182/3768), Lei Hai-p'eng (7191/3189/7720), and Hsu Pin (5171/1755).

Besides the general meetings, there were symposia in pharmacology and physiology. Principal topics discussed in the physiology symposium were neurophysiology, digestive physiology, secretory physiology, and physiology related to Chinese traditional medicine.

Ts'ai Ch'iao (5591/5062) emphasized the importance of initiating research on the psychophysiology of consciousness and memory. He raised the question of whether the cerebral cortical cells, in addition to being interoceptors, exteroceptors, and regulators of movement, might possibly have also the role of the "consciousness of ego" and would, therefore, be the physiological basis of consciousness.

Ts'ai Ts'ui-ang (5591/4210/4138) discussed several aspects of neurophysiological research which require the use of electronic computers, indicating that these two disciplines [electronics and neurophysiology] will some day be combined as a new one.

The mechanism and sites of temporary synaptic correlations of conditioned reflexes and the physiology of receptors were also discussed.

On the physiology of the digestive system, the functional activities of the pyloric antrum and the regulation of gastric secretion were elucidated.

The physiology of the endocrine system was discussed with particular emphasis on the correlation of nervous activity and internal secretions, functions of the hypothalamic-pituitary system, and the mechanism of hormonal activity.

Problems concerning the physiology of circulation and respiration were brought up. These included the action of vasopressin and norepinephrine in idiopathic hypertension, the orientation of the cardiovascular center, and the problem of the existence of P'ing's [Chinese approximation of a foreign name] reflex in the physiology of the cardiovascular system. It was concluded that the latter is not a general phenomenon, based on [recent] Chinese and foreign research data.

Discussions on the physiology of problems related to Chinese traditional medicine mainly concerned the mechanism of acupuncture-moxibustion therapy and studies on substantial evidence of the existence of "ching-lo" [i. e., the 14 hypothetical channels along which the acupuncture-moxibustion sites are located]. Although much research data have been accumulated in the past 3 years, resolution of these problems will take considerable time. Some conferees expressed belief in the actual existence of the 14 lines, while others held that it is an ancient concept now outdated.

Hou Tsung-lien (0186/1350/3425) gave a detailed presentation of his studies on the excitation index. Chang Hsiang-t'ung (1728/7449/3425) pointed out that the mere absence of [excitation] phenomenon does not necessarily indicate inhibition and called for a better understanding of inhibition in the nervous system. Feng Te-p'ei (7458/1795/1014) held that inhibition of a synaptic transmitter should not be confused with Pavlov's phenomenon of internal inhibition. As for a nerve fiber's loss of the ability to transmit impulses -- Wedensky's inhibition, [he pointed out that] it would be better to call it "nervous conduction block."

Following the decision of the 1961 Scientific Conference on Pharmacology, the pharmacology symposium centered its discussions in neuropharmacology, psychopharmacology, and biochemical pharmacology. The relationships between central transmission in chemical stimulation and psychopharmacology, as well as various hypotheses concerning mechanism in biochemical regulation of mental activity, were discussed. Conflicting views were aired relative to Brodie's assumption that norepinephrine and 5-hydroxytryptamine [serotonin] are two opposing systems, each counteracting the effect of the other on the brain stem -- [one] accelerating movement and [the other] promoting vegetative activity. The majority opinion was that, on the basis of present evidence, norepinephrine and 5-hydroxytryptamine are just neurohormones and possibly metabolites. It was conceded that these theories will stimulate further pharmacological research in this area of concern.

The symposium also threw light on the categories of mediators and tranquilizers, as well as on psychopharmacological and neuropharmacological categories. It was brought out that one of the major trends in biochemical pharmacology is the general use of biochemical theories and methods to probe the modes of actions of drugs. Other topics discussed were: the pharmacology of reticular structures, the modes of action of analgesics, macroscopic and microscopic studies in psychopharmacology, the correlation of advanced and basic sciences, the importance of research on antimetabolites, the role of nucleic acids in cancer chemotherapy, and fundamental theories of drug metabolism.

The conference moved to compile and publish at an early date all the reports and discussions that were made during the meetings.
-- Wang Chen-kang (3769/2182/4854) and Ch'en Meng-ch'in (7115/1322/0530)

SQUAMOUS CARCINOMA OF THE ESOPHAGUS STUDIED -- Peiping, Chinese Medical Journal, Vol 81, No 9, Sep 62, pp 557-567

[The following is a summary appearing, in English, in an article, "Squamous Cell Carcinoma of the Esophagus: Early Carcinomatous Changes of the Epithelium Adjacent to the Principle Lesion," by Sun Shao-chien (1327/4801/6197), Pathoanatomy Department, Shantung Medical College, and Wu Hsia (0702/6667), Pathology Department, Fu-wai Hospital, Chinese Academy of Medical Sciences.]

The morphologic characteristics of early carcinomatous changes involving the epithelium adjacent to the main tumor mass and of the resected margins were studied by means of a detailed analysis of 100 surgically resected specimens of squamous cell carcinoma of the esophagus. The epithelium adjacent to the infiltrative carcinoma revealed three types of lesions: hyperplasia of the epithelium, carcinomatous changes of the cells of the basal layers, and carcinoma in situ. In the early stages of carcinogenesis of some cases of squamous cells carcinomas, a few of the cells in the basal layers showed carcinomatous change.

Two features appear to be characteristic of squamous cell carcinoma of the esophagus: (1) carcinomatous cells of the basal layers may become an infiltrative carcinoma, while the cells of the superficial layers may be normal in appearance; (2) different degrees of differentiation exist in carcinomas in situ.

Twenty-two of the 100 specimens showed grossly invisible early carcinomatous lesions at the resected margins (18 at the proximal and 4 at the distal margin). The distance from the resected margin of the specimens to the margin of the main tumor mass may be as long as 7.4 centimeters (measured after the specimens had been fixed). We believe that at least a few cases of squamous cell carcinoma of the esophagus are multicentric in origin.

CANCER TREATMENT AT SHANGHAI HOSPITAL -- Peiping, Kuang-ming Jih-pao, 5 Oct 62, p 2

In accordance with descriptions in foreign technical literature, the Chung-shan Hospital of Shanghai First Medical College has adopted the use of localized infusion of anticancer drugs in treating some patients in the late stages of cancer and has achieved a definite modernation of their symptoms. At present, cancer is treated with anticancer drugs, as well as with radiation and surgery, and this method has come to be seriously regarded in many countries in recent years. However, the

disadvantage of this type of therapy is that when the drug is taken by mouth or injected, there is always a certain degree of poisonous reaction, and the drug cannot be used in large quantities. At the same time, since the drug has an effect upon the whole body, the fast-growing cancer tissue does not suffer the maximum degree of destruction and control. For these reasons, medical research has been directed at finding methods of using the drugs as much as at finding new drugs themselves. Localized infusion involves surgery which temporarily isolates the cancerous areas from the blood circulation of the body. Large amounts of the drug are then introduced into an independent circulation through a small artificial heart-lung machine. This permits the drug to have its greatest effects on other organs or tissues.

Chung-shan Hospital began the experimental use of this method in 1960, with many experiments being carried out on the bodies of animals. Its first clinical application was in 1961. This method of therapy has already been applied to patients suffering from cancer of various members of the body, cervical cancer, rectal cancer, caecal cancer, and cancer of the ascending colon.

MEDICAL SOCIETY REPORTS ON INTERNATIONAL ONCOLOGY CONFERENCE -- Peiping, Kuang-ming Jih-pao, 17 Sep 62, p 1

On 12 September 1962, the Chinese Medical Association convened a reports conference on the Eighth International Oncology Conference. Peiping medical specialists and medical teachers in oncology read reports. Some 1,500 delegates of the association's branches in Heilungkiang, Kirin, Kiaoning, Shantung, Shansi, Shensi, Honan, and Inner Mongolia attended. The President of the Chinese Medical Association, FU Lien-chang (0265/6647/8529), presided at the reports conference, and the director and members of the medical delegation to Moscow were present.

Prof HUANG Chia-szu (7806/1367/7475) reviewed the agenda of the international conference, which was held in Moscow on 27-28 July. Sixty-eight countries were represented. The Chinese delegation submitted 33 reports. Eighteen papers were read, covering various fields such as basic medicine, clinical research, general investigation, and antitumor drugs. The articles submitted by the Chinese delegation were highly regarded by the scientists of other countries.

Prof YANG Chien (2799/4675) presented the theoretical portions of the reports submitted at the international conference in terms of ten problems: the role of virus as a cause of tumors, tumor immunology, biology of tumor cells, cancer biochemistry, causes of cancer, the relationship between tumors and organs, precancer pathological changes, uterocervical cancer in situ, diagnostic methods for cancer, and cancer environment and occupational cancer.

Prof WU Ying-k'ai (0702/5319/1956) discussed stomach, lung, breast, colon, and rectal cancer, adding that at present there is no immunity against cancer and that early discovery and therapy are still the most important procedure in the work of guarding against cancer.

Prof WU Huan-hsing (0702/2719/5281) discussed radiation and chemotherapy. In the past 15 years, radiation therapy has advanced to a new stage. Because instruments have become more effective and control techniques in radiation therapy have improved, the biological problems involved in the radiation therapy process and the different rules governing the clinical development of the tumor patient can be better understood. Radiation therapy is still not without its dangers. Thus prior to its application, careful examination is still necessary to see if it is required. Many reports on chemotherapy were submitted at the international conference. Various countries are placing different emphasis on the new synthesis of drugs but still have not discarded former types, such as nitrogen mustard, antimetabolites, and antibiotics. Methods of administering drugs have improved considerably, for example, continuous arterial infusion and the combined use of antimetabolins and metabolins. The search for new drugs and new methods of use will be further developed in the future.

CHINESE MEDICAL ASSOCIATION HONORS CANADIAN PHYSICIAN -- Peiping, Kuang-ming Jih-pao, 6 Oct 62, p 1

On 5 October, the Chinese Medical Association held a meeting at which it awarded honorary membership to Prof Wilder Penfield, Canadian neurosurgeon visiting in China. At the ceremony, Chinese Medical Association President Fu Lien-chang (0265/6647/8517) stated that this deed would help to strengthen academic interchange between China and Canada. He also stated that the four very valuable reports given by Professor Penfield during the course of his visit had been of great assistance.

At this meeting, Professor Penfield accepted an invitation to deliver a report on "The Causes and Surgical Cure of Topographical Epilepsy," which was enthusiastically welcomed by the more than 400 medical workers present.

Professors Penfield came to China during mid-September at the invitation of the Chinese Medical Association and visited medical societies, medical colleges, and hospitals in Peiping, Nanking, Shanghai, Tientsin, and Shih-chia-chuang.

RESEARCH ON THE APPLICATION OF DIAGNOSIS BY THE VISCERA PICTURE THEORY--- Peiping, Kuang-ming Jih-pao, 9 Oct 62, p 1

The doctrine of the Viscera Picture (tsang-hsiang) is an important part of the scholarly theories in Chinese medicine. In the Chinese medical classics, special works dealing with the pathogenesis of the viscera (tsang-fu) are comparatively few, but physicians believe that pathogenesis of the viscera has a close relationship with correct diagnosis. In the fall of 1960, the Documents Laboratory, Institutes of Chinese Traditional Medicine, Kiangsi branch of the Chinese Academy of Medical Sciences, began research on the application of diagnosis using the Viscera Picture theory. It collected material on the theory found in documents scattered throughout successive periods of Chinese medicine and systematically compiled it for use in a treatise. At present, it has completed the sections on the lungs and on the liver.

The important contents of the sections on the pathogenesis of lungs and liver pertain to physiological properties, pattern of morbid changes, and the application of diagnosis. In the section on the liver, it not only assimilated the best of the theories in the Chinese medical classics, but also included the cases of famous doctors throughout the successive periods of Chinese medicine and abstruse views of medical proverbs.

ACUPUNCTURE CURES RHEUMATISM OF DOMESTIC ANIMALS -- Peiping, Kuang-ming Jih-pao, 8 Oct 62, p 2

For more than 2 years, the Liaoning Provincial Research Institute of Veterinary Medicine (Shou-i Yen-chiu So; 3757/6829/4282/4496/2076) has been conducting research in the treatment of chronic rheumatism in domestic animals by means of acupuncture and moxibustion and has achieved sine definite results. This method of treatment is being promoted in some areas.

Domestic animals suffering from chronic rheumatism gradually lose their strength, and larger animals become paralyzed to the point where they cannot even stand. The disease usually appears between fall and winter of each year and gradually gets worse. In the past, there has been no effective medical remedy for it. In 1960, a doctor at this institute with more than 30 years of experience in Chinese traditional veterinary medicine began to carry out research in the use of acupuncture and moxibustion in the treatment of this illness. The results of more than 200 cases proved that this treatment is highly effective. More than 20 veterinary medical personnel trained recently by this research institute received instruction in the use of this treatment.

VETERINARY BIOLOGICALS MADE IN HANGCHOW -- Peiping, Jen-min Jih-pao,
18 Sep 62, p 2

Hangchow Veterinary Biologicals Manufacturing Plant makes emphysema formalhyde vaccine for cattle, hog erysipelas aluminum hydroxide formalhyde vaccine, and ten or more biologicals to prevent fowl epidemics. According to national standards, for the manufacture of veterinary biologicals, each milliliter of hog erysipelas vaccine must contain 3 billion bacteria.

BLACK FEVER ALMOST WIPED OUT IN SHANTUNG Peiping, Kuang-ming Jih-pao,
25 Sep 62, p 2

The black fever, prevalent in Shantung Province for more than 80 years, has been almost wiped out. In 1950, 3,500 persons in one million suffered from the disease; by the end of 1961, this figure was reduced to 9 in one million.

Some areas in the province have finally extinguished the disease. For example, in the past the disease was quite prevalent in the 45 villages of 11 people's communes where there has not been a single case since 1961.

The black fever is a parasitic disease transmitted by the white sand fly. It is prevalent from the Yangtse River to northern rural areas, with Shantung Province being the area most affected. In the preliberation period, people infected with this disease received no help; the fever spread rapidly, and the death rate was high. Since the liberation, however, the party and government have done a great deal to control the disease. Between 1950 and 1958, under the leadership of the Shantung Provincial Research Institute of Parasitic Control (Shan-tung Sheng Chi-sheng Ch'ung-ping Fang-chih Yen-chin-so, 1472/2639/4164/1376/3932/5722/4016/7089/3112/4282/4496/ 2076), some 4,200 black fever control personnel have been developed and trained in the province. Research Institute Director WANG Chao-chun (3769/0340/0193) cooperated with the New China Durg Manufacturing Plant in producing a very effective drug, sodium antimony gluconate. Large-scale production of the drug was necessary each year. For those allergic to it, another kind was developed, also very effective. Thus the control rate has risen to 99 percent. Since 1958, the province has adopted comprehensive control measures and seasonally exterminated the white sand fly, which created the conditions for the ultimate extinction of the black fever.

ACCOMPLISHMENTS OF 13 YEARS OF HEALTH WORK IN SINKIANG -- Peiping, Kuang-ming Jih-pao, 4 Oct 62, p 2

In the past 13 years, especially since the great leap forward in 1958, the accomplishments in health work in the Sinkiang Uighur Automous Region have been very considerable and have had a great effect in protecting the physical health of the people of all nationalities.

At present, medical, pharmaceutical, and health organizations have been established in all cities, rural villages, and herding areas north and south of the T'ien Shan. According to statistics, for the first half of 1962, there are an average of 29 sick beds per 10,000 population, compared with 1.53 in the period immediately after the liberation in 1949. Before 1958, there were doctors at only a few of the hsien level hospitals, but at present there is at least one graduate of a higher level graduate school at each hsien hospital. In the past few years, most hsien hospitals have performed ordinary surgery and have installed X-ray equipment. Most commune health stations have one or more graduates of middle-level health schools and have established simple sick bed facilities.

The number of medical and health personnel in Sinkiang is also growing steadily. At present the total number of all levels of health personnel is more than 60 times what it was in the period immediately after the liberation. In 1961, the Sinkiang Medical College graduated its first group of medical and pharmaceutical students.

KWEICHOW MOBILE HOSPITAL --- Peiping, Kuang-ming Jih-pao, 5 Oct 62, p 2

In the year since it was established, the Kweichow Province Mobile Hospital, which ordinarily serves the rural people in the mountain districts, has saved more than 100 seriously ill patients and cured many doubtful and difficult diseases, either independently or in cooperation with local basic-level health personnel. The hospital is divided into four sections, internal medicine, surgery, pediatrics, and obstetrics. Ordinarily, the 30 medical workers in the internal medicine and surgery teams go to the mountainous areas on missions and may split up and go to separate areas when necessary.

In addition, the hospital's medical workers frequently hold various kinds of report meetings and meetings for the exchange of experience for the basic-level health personnel. They have held 34 lectures on the problems of treating common diseases.

ACTIVITIES AT SHANGHAI HEALTH EDUCATION CENTER -- Peiping, Kuang-ming Jih-pao, 27 Sep 62, p 2

Since its establishment in 1959 Shanghai Municipal Health Education Center, located in the outskirts of Shanghai, has been sponsoring various kinds of health exhibitions, lectures, mobile unite which distribute

health information, and cultural and entertainment activities. Messhall and management personnel from both sides of the Huang-p'u Chiang, street and alley health activists, suburban people's commune personnel, and teachers and students from elementary and middle schools all considered the health center their "health adviser."

The many medical personnel of the center are specialists in public health. Letters come to the center from Shanghai and many places throughout the country seeking various kinds of information on health. All of these letters are reviewed and answered, some not until education and scientific-research organs and hospitals are first consulted.

Popular reading material compiled by the center, of which there now are 299 different titles, is welcomed by the masses. The center and the Shanghai branch of the Chinese Medical Association jointly sponsor medical radio broadcasts. The center engages medical specialists to give popular lectures over the Shanghai People's Broadcasting Station periodically, thus spreading health information to remote places.

SANITATION MOVEMENT LAUNCHED TO CELEBRATE NATIONAL DAY -- Peiping, Kuang-ming Jih-pao, 20 Sep 62, p 1

Peiping, Shanghai, Tientsin, Canton, Nanking, and other cities have launched a patriotic sanitation movement to usher in National Day celebrations. The heart of the movement is neighborhood sanitation and food sanitation. This summer and fall, Peiping launched its third such movement. On 8 August, Shanghai began its second patriotic sanitation movement, which includes the extermination of mosquitoes and flies, as part of its task.

COMPILATION OF GRADED SOIL FERTILITY MAP DISCUSSED -- Mukden, T'u-jang T'ung-pao (Soil Bulletin), No 5, Oct 60, pp 59-65

[The following is a summary of an article, "The Compilation and Utilization of a Graded Soil Fertility Map of Plowed Land," by Tsu K'ang-ch'i (4371/1660/4388), Department of Soil Chemistry, Peking Agricultural University.]

The graded soil fertility map and maps showing soil improvement and crop suitability are the most common types of maps used in rural areas and in people's communes.

After collection of the data on soil fertility, the following procedures are to be followed in the compilation of the map:

A. Understand the Purpose of the Map

1. The graded soil fertility map must fully reflect the level of soil fertility. For production brigades, there ought to be five or six grades; for people's communes, there ought to be seven to nine grades.

2. The map must reflect the needs for fertilizer application.

3. The scale of the map must be such as to make it useful in production; the scale must be adapted to the purpose of the map, the area covered, and the accuracy needed. Areas of less than 10,000 mou should use a scale of 1:5,000; areas of 10,000-100,000 mou should be mapped on a scale of 1:10,000; areas of 100,000-500,000 mou should be mapped on a scale of 1:10,000-1:25,000; and areas of greater than 500,000 mou should use a scale of 1:50,000. The above scales apply to generally level land; mountainous areas ought to be mapped on a somewhat larger scale.

4. The map ought to be clear and attractive so that it will be easily understood and convenient for the masses to use.

5. The contents and accuracy of the maps must be approved by the local leaders, the experienced farmers, and the production cadres.

B. Ordering of the Soil Data

This step must involve full familiarization with, and a comparative analysis of, the data.

C. Addition of Explanatory Material

The explanatory material must include the description of the soil fertility grades, the types of soil in each grade, their distribution, and the techniques to be used in the application of fertilizers. (CONFIDENTIAL)

SOIL ACTINOMYCETES ISOLATED IN A MODIFIED MEDIUM -- Peiping, T'u-jang Hsueh-pao, Vol 10, No 1, Mar 62, pp 102-106

[The following is a translation of the Chinese-language abstract, supplemented with additional material from the text, of an article, "A Method for the Isolation of Soil Actinomycetes," by Yu Ch'ang-fen (3266/7022/5358), Institute of Soils, Chinese Academy of Sciences.]

"Gauze No 1" medium, with 100 parts per million $K_2Cr_2O_7$ added, was used as a culture medium for the isolation of soil actinomycetes. The modified medium gave large colony numbers and more kinds of species with distinguishable characteristics than the usual ammonia starch medium. The growth of bacteria and mold was largely inhibited. Using the modified medium, it was possible to identify the species' groups directly on the plate, thus eliminating the work of removing the actinomycetes.

The species of actinomycetes grown in the culture included: Actinomyces aurens, A. grisens, A. coerulescens, A. chromogenes, A. Violaceus, A. nigrescens, A. Helbolus, A. fradiae, A. fuscus, A. Roseoviolaceus, A. stirelis, A. albosporus, A. ruber, A. chrysomallus, and A. lavendulae.

SZECHWAN SCIENCE SOCIETIES ACTIVE -- Peiping, Kuang-ming Jih-pao, 30 Sep 62, p 2

The natural science societies in Szechwan Province have been engaged in many kinds of scientific and technological activities related to agricultural production. During 1962, these societies have been engaged in over 240 different activities and have compiled over 400 papers and research reports. Of these, about one half were related to the problems of agricultural production.

Many of the activities were concerned with applied technology. The Society of Agricultural Sciences held a symposium devoted to the problems caused by the drought afflicting many areas in Szechwan Province in 1962. Among the suggestions made were the improvement of seed selection and the prevention of the damage done by caterpillars. The majority of the 40 papers received during 1962 by the Society of Hydraulic Engineering were concerned with the technical problems of water power for agricultural villages and water conservancy for agricultural fields.

Other activities of these societies were concerned with the theories behind present problems in agricultural production. The Society of Agricultural Sciences, during its August 1962 conference, discussed the interrelationship between the planting of fall and summer crops. The Society of Animal Husbandry and Veterinary Medicine discussed the problem of hog fodder in the Szechwan Plain. The Society of Meteorology discussed the weather conditions for the sowing early rice and the seasonal variation in precipitation in the Szechwan Basin. The Society of Mechanical Engineering discussed the problem of power in farm villages.

In additions to their other responsibilities, the scientific societies also carried out scientific research, including work in the fields of agriculture, pedology, hydraulic engineering, and meteorology.

SYMPOSIUM ON WESTERN PACIFIC FISHING HELD IN RUSSIA -- Peiping, Kuang-ming Jih-pao, 15 Sep 62, p 2

A symposium on Western Pacific biological regions and related questions was held in Leningrad, on 10-13 September, convened by the Western Pacific Fishing Industry Research Commission. The Chinese delegation was headed by Vice-Minister Aquatic Products SHIH Min (0670/2404). Scientists from the USSR, Korea, Vietnam, and Mongolia attended. The task was to explore questions on how to expand the marine products catch and increase its volume from the biologist's point of view.

CONFERENCE HELD ON BEEKEEPING -- Peiping, Kuang-ming Jih-pao, 30 Sep 62, p 2

The Chinese Society of Entomology convened the first discussion conference on beekeeping recently in Hangchow. The conference was held to discuss recent research on the problem of combating the "feng-man?" (5762/5722 / 5335) [A type of bee mite, perhaps Braula coeca] and (0357)

clinical applications and production of royal jelly and bee venom. Various Chinese beekeeping production units, medico pharmaceutical groups, and scientific-research organs concerned participated in the conference.

The "bee mite" is a species of parasite living on the outside of the honeybee; it causes great damage to the bee colony. Nine papers on this subject were presented to the conference. The papers concluded that rotenone [dissolved] in naphthalene is an excellent insecticide for combating the bee mite; they further pointed out the necessity for rigorous control in the use of the insecticide, in order to increase its efficiency in killing the parasite and reducing its danger to the bee colony. It was further concluded that the parasite has been spread by the Italian bee, even though the parasite was present in Chinese bee colonies prior to the introduction of Italian bees.

Clinical applications of royal jelly and bee venom have been practiced in China for the past few years. Over 20 papers were presented describing these applications. Good results were obtained by the use of bee venom in treating rheumatic arthritis and in using both the venom and royal jelly in the treatment of infectious hepatitis and other chronic diseases.

OIL PRESSED FROM WILD PLANTS -- Peiping, Jen-min Jih-pao, 18 Sep 62, p 2

The oil-pressing plant belonging to two production brigades in Honan Province has begun pressing oil from Ts'ang-erh-tzu [burweed] collected by the commune members. The press gets a yield of 9-12 chin of oil per 100 chin of plants.

Ts'ang-erh-tzu, also called Ts'ang-erh, Ts'ang-tzu, Tao-jen-t'ou, etc., grows wild by the side of roads and ditches, is very adaptable, and is very widely distributed. Its seeds are slightly larger than soybeans, and the shells is covered with hooked thorns. Inside is a shrivelled nut which contains about 15 percent oil. This oil contains Ts'ang-erh-tzu glucoside, which makes it inedible and suitable for industrial purposes only. The cakes remaining after pressing can be used as fertilizer and as a native insecticide.

TECHNICAL SCIENCES

CIVIL ENGINEERING SOCIETY HOLDS CONGRESS, CONFERENCE -- Peiping, Kuang-ming Jih-pao, 20 Sep 62, p 2

The Third [National] Congress and 1962 [Scientific] Conference of the Civil Engineering Society of China were held recently in Peiping. The conference received 192 papers concerned with railway, communications, and construction engineering and public works, engineering, etc.

In the discussions, reports centering on structural safety attracted a great deal of attention. The relationship between economy, reasonableness, firmness, and safety in a structure is not only a theoretical problem, but also a problem of technical policy. The discussions reviewed both domestic and foreign research in this area, the experience of Chinese capital construction in the past few years, and the various factors which affect the safety of a structure. After a full discussion, all agreed that the Chinese method of making the fullest use of the three coefficients (load-bearing, material strength, and working conditions) in the design of civil engineering structures is a rational one.

The special discussion group on construction and structural engineering considered and argued about several new ideas on basic theories and calculation methods proposed in such papers as "Rational Calculation of Dynamics and Statics in Single-Story Industrial Buildings" and "Calculating the Strength of Reinforced Concrete Beams Under Combined Effects of Bending Moment and Shear Stress." The latter paper suggests the application of the Mohr theory and uses experimental data as proof.

The conference also presented a picture exhibit of engineering activities both in China and in foreign countries.

In the society's elections, Mao I-sheng (5403/0110/0581) was re-elected chairman, and Wang Chu-ch'ien (3076/5468/3383), T'an Chen (6223/4176), Chao Tsu-k'ang (6392/4371/1660), T'ao Shu-ts'eng (7118/6615/2582), Wang Ming-chih (3769/2494/0037), and Liu Yun-hao (0491/0061/7729) were elected deputy chairmen of the board of directors. Liu Hsiu-feng (0491/4423/1496), Minister of Building, delivered the final address at the conference.

NATIONAL COAL CHEMISTRY CONFERENCE HELD IN T'AI-YUAN -- Peiping, Kuang-ming Jih-pao, 26 Sep 62, p 2

The Department of Technical Sciences of the Chinese Academy of Sciences held a national conference on coal chemistry and utilization in T'ai-yuan from 13 to 18 September. The conference reported and discussed 57 papers which reflected the accomplishments of Chinese research in coal sciences since the Great Leap Forward, as well as the direction which has been taken by research in the basic theories of coal chemistry and chemical processing.

Scientific research in coal chemistry was not begun in China until after the liberation, but there has been a great deal of progress in this field in recent years. Participating in the current conference were 59 scientific workers from 37 scientific research organizations, higherlevel schools, and production units in all parts of China. Well known coal chemist Chang Ta-yu (1728/1129/3558), Nieh Heng-jui (5119/1854/6904), and Wang Yin-jen (3076/1377/0086) were among the more than 200 scientific workers attending the conference.

FIRST ANNUAL NATIONAL WELDING CONFERENCE HELD IN HARBIN -- Peiping, Jen-min Jih-pao, 27 Sep 62, p 2

Since 1954, higher-level schools in China have trained a total of 1,500 graduates in welding specialties, according to an announcement at the first annual National Welding Conference held in Harbin from 17-24 September. The conference was attended by 57 official delegates from concerned departments of the central government and research units, schools, and production departments in 17 provinces and municipalities. Most of them were young welders and research workers who have been trained since the liberation.

At present, welding specialties have been established at 14 new higher level schools in China. Accomplishments in this field are reflected by the fact that 133 papers were received for presentation at the conference. Of these, 48 were read and discussed.

This conference was sponsored jointly by the Mechanical Engineering Society of China and the Heilungkiang Provincial Mechanical Engineering Society. The conference formally established the Welding Trades Society (Han-chieh Chuan-yeh Hsueh-hui; 6919/2234/1413/2814/1331/2585) of the Mechanical Engineering Society of China.

EARTH SCIENCES

DISTRIBUTION OF PRECIPITABLE WATER OVER CHINA SET FORTH -- Peiping, T1-11 Hsueh-pao (Acta Geographica Sinica), Vol 28, No 2, Jun 62, pp 124-136

[The following is an abstract of an article, "The Water Vapor Content of Chinese Continental Air," by Cheng Szu-chung (6774/0631/0022) and Yang Te-ch'ing (2799/1795/0615), both of the Institute of Geography, Chinese Academy of Sciences.]

The monthly mean values of the water-vapor content (the precipitable water) reported by about 70 radiosonde stations in China have been computed for the period 1957-1959, and for each month a chart of these values has been prepared.

It was found that the distribution and variation of the precipitable water over China are closely associated with the monsoon system over east Asia.

The following conclusions were reached on the basis of our data: The yearly mean precipitable water decreases from southeast to northwest. The distribution of the precipitable water is influenced by the topography, particularly during the summer. In the winter, the area of maximum precipitable water occurs in South China; during the summer months, it moves to the lake basins of Tung-t'ing and P'o-yang. In the winter, except for South China, the precipitable water of most of the country is below normal for the latitude. In the summer, the eastern half of China is above the normal, while the west remains below. Accordingly, the annual range of precipitable water is largest in the eastern half. The gradient of the precipitable water is larger in summer than in winter.

MICROMETEOROLOGICAL EFFECTS OF WIND BARRIERS DISCUSSED -- Peiping, Ch'i-hsiang Hsueh-pao (Acta Meteorologica Sinica), Vol 31, No 3, Nov 61, pp 205-215

[The following is a translation of an abstract, in Chinese, appearing in an article, "A Preliminary Investigation of Micrometeorological Effects of Wind Barriers," by Yen K'ai-wei (0917/7030/0251) and Ching Jung-lin (2529/2837/2651), both of the Department of Geophysics, Peking University.]

Parallel wind barriers are widely used in North China to protect vegetable crops during the cold season. The structural dimensions of the barriers vary from time to time and from place to place in accordance

with the experiences of the farmers. In general, the barriers are fences about 1.5-2 meters high and 100-200 meters long and consist of kaoliang stems or reeds. To protect the crops from the cold prevailing northwest wind, the fences are oriented in a east-west direction. The inclination and density of the fences vary with the season. In the early spring, the barriers are impermeable and inclined toward the south at an angle of about 60-70 degrees to the horizontal; in the early summer, they are very open and erect. The distance between successive impermeable fences is usually about 5 meters. The cropped area is confined to a narrow strip 2-3 meters to the south of each fence. Both the distance between successive open fences and the width of the protected area may exceed 15 meters.

The paper describes a preliminary investigation of the micrometeorological effects of the impermeable fences. Observations and experiments within the narrow growing strip show that:

1. The wind speed is sharply reduced. In the case of a 3-4 wind from the northwest, air 25 centimeters above the ground immediately to the lee of the fence is nearly stagnant; at a distance of about 2 meters from the fence, air speed may increase to about 35 percent of the wind speed in the open.

2. The barriers shade the northern section of the sky and reflect the solar radiation coming from the south. The combination of shading and reflecting effects influences the total incoming solar radiation. Large amounts of incoming radiation are associated with high fences, few clouds, low solar altitudes, short distances from the fence, and high reflectivities of the fence surfaces. Of these factors, the clouds are the most important. It is found that, at noon, the total incoming solar radiation within the narrow strip exceeds that of the open area when the sky is clear and is less than that of the open area on cloudy or rainy days.

3. The fences obscure a large solid angle of the sky, so that the effective surface radiation is noticeably reduced.

4. The eddy coefficient is smaller close to the ground than in the open.

The skies of North China are generally clear in winter and early spring. After the passage of a cold front, the weather is usually characterized by strong wind from the northwest and very low turbidity. Impermeable wind barriers are of the greatest usefulness during these periods. (CONFIDENTIAL)

CONFERENCE HELD ON PREDICTION OF IRON ORE DEPOSITS -- Peiping, Ti-chih Hsueh-pao (Acta Geologica Sincia), Vol 41, No 2, Sep 61, p 230

The Research Academy of Geological Sciences, Ministry of Geology, working through the Bureau of Geology, Kiangsi Province, convened a conference during April 1961 on predicting the location of iron ore deposits in eight provinces of Southeast China (Kiangsi, Kwangtung, Kweichow, Hunan, Hupeh, Anhwei, Chekiang, and Fukien). The conference was attended by over 30 persons.

The goal of the conference was to summarize and exchange information on iron ore deposit formation in the above-mentioned eight provinces. Li Ju-kao (2621/1172/4108) of Kiangsi Province and representatives from other provincial bureaus or departments submitted reports on this subject. P'ei Jung-fu (5952/2837/1381) spoke on the topic "The Situation in Research on Chinese Pay, Iron Ore Deposits and Opinions on Future Work."

On the basis of experiences in calculating the iron ore reserves of Kiangsi Province, certain revisions were made in T'ieh-Kuang Ti-chih Chu-liang Chi-suan Fang-fa (Methods of Calculating Iron Ore Reserves), a publication of the Research Academy of Geological Sciences, Ministry of Geology.

The symposia and discussions revealed that the types of iron ore found in the previously mentioned eight provinces are about the same; secondary types are distinguished by their composition. The types discussed included brass ore-magnetite, xanthosiderite-magnetite, polymetallic-magnetite, cassiterite-magnetite, "simple" (tan-i; 0830/0001) magnetite, and "simple" haematite. As to the date of formation of these iron ore deposits, the great majority of the conferees agreed that the Yenshan period was the most significant. (CONFIDENTIAL)

CHEMISTRY AND CHEMICAL TECHNOLOGY

CALCIUM, STRONTIUM, AND BARIUM DETERMINED SPECTROGRAPHICALLY --
Peiping, T'u-jang Hsueh-pao, Vol 10, No 1, Mar 62, pp 89-97

[The following is an English abstract appearing at the end of an article, "The Spectrographic Determination of Micro-quantities of Calcium, Strontium, and Barium in Water and Soil Extracts," by Fang Chao-lun (2455/5128/0243) and Chang Kuei-lan (1728/2710/5695), both of the Institute of Forestry and Soils, Chinese Academy of Sciences.]

A spectrographic procedure using copper electrodes, a medium dispersion quartz spectrograph (Q-24), and an activated a.c. arc as a light source for the determination of microquantities of calcium, strontium, and barium in water and soil extracts is described.

Three hundred milligrams (mg) of sodium chloride were added to 25 milliliter (ml) of the solution to be determined, as a spectrographic buffer; than one ml 0.6 N HCl and, finally, one mg of zinc (as zinc sulfate) were added as internal standard. There was 0.025 ml of this solution transferred to the upper and lower electrodes and evaporated to dryness at 55-60 degrees centigrade. The electrodes were excited at 6.0 amperes for 30 seconds.

The analytical line pairs used were Sr II 4215.52/7n I4722.16, Ba II 4554.04/7n I4 722.16, and Ca II 4425.44/7n I 4722.16.

Samples with as low a concentration as 0.1 /ml were usually determined with a precision of better than 5% relative deviation, using fixed working curves.

The results of the spectrographic determination of calcium were in good agreement with results obtained using a chemical method. Neglecting results of very low calcium contents, the differences between results of the spectrographic method and the chemical method were usually less than 10%.

The influences of calcium and magnesium concentration upon the line intensities of barium and strontium and the method of its elimination, as well as the influence of solution acidity upon line intensities and the reproducibility of results, are also discussed. It is found that sodium chloride was quite effective as a buffer.

[The text states that the work reported in the paper was carried out under the direction of Ho I-chen (0149/1837/6297), Institute of Metals, Chinese Academy of Sciences.]

SOIL POTASSIUM DETERMINATION IMPROVED -- Peiping, T'u-jang Hsueh-pao, Vol 10, No 1, Mar 62, pp 98-101

[The following is an abstract of an article, "Modification of J. L. Smith's Method for the Determination of Soil Potassium," by Chou Wei-chen (0791/4850/3791), Wang Chen-nung (3769/2182/6593), Huang Yueh (7806/6885), Tai Ken-jung (2071/2704/2837), and Chang Lien-ti (1723/6647/1717), all of the Institute of Soils, Chinese Academy of Sciences.]

In the commonly used procedure (J. L. Smith's method) for determining soil potassium, solid ammonium chloride is pulverized with the soil sample and then mixed with calcium carbonate. The authors recommend the mixing of the soil and the calcium carbonate in advance and then moistening the mixture with 15 percent NH_4Cl solution.

The experimental results showed that fusion can be done directly in an electric furnace at 700 degrees Centigrade without significant evaporation of ammonium chloride. Potassium can be determined in a portion of water extract with a flame photometer without the previous removal of calcium II ions; the error is 0.4-4 percent if the K_2O content is above 50 parts per million (ppm); the results are also satisfactory if the K_2O content is between 20 and 50 ppm and the calcium II content is less than 350 ppm.

ANILINE USED TO DETERMINE PENTOSSES IN SOILS -- Peiping, T'u-jang Hsueh-pao (Acta Pedologica Sinica), Vol 10, No 2, Jun 62, pp 220-226

[The following is an English abstract appearing at the end of article, "The Determination of Pentoses in Soils," by Wen Ch'i-hsiao (2429/0796/1321) and Ch'eng Li-li (4453/0536/0536), both of the Institute of Soils, Chinese Academy of Sciences.]

The colorimetric airline method for the determination of pentoses of Tracey (Tracey, M. V., "A Colorimetric Method for the Determination of Pentoses in the Presence of Hexoses and Uronic Acids," Biochemical Journal Volume 47 (1950), pages 433-436) was applied to soil hydrolyzates. The experiments showed no interfering substances in the color development after the treatment of the hydrolyzates with calcium carbonate and an inorganic cation exchange resin, the Chinese-produced Strong Acid Model No 1 Cation Exchange Resin. Equimolar quantities of the various pentoses did not give exactly equal effects in color development. Since the pattern of pentoses probably is similar in different soils, the aniline method may give an approximate value for the total pentose content of the soils.

MATHEMATICAL AND PHYSICAL SCIENCES

CHINESE NUCLEAR REACTOR AND CYCLOTRON CONSTRUCTED -- Peiping, K'o-hsueh Hsin-wen (Science News) Jul 58, pp 327-329

The following are extracts from an article, "Chinese Atomic Reactor and Cyclotron Constructed," by Chin Hsing-nan (6855/2502/0589), Institute of Atomic Energy, Chinese Academy of Sciences.

By 1958, China already had constructed an electrostatic accelerator. The accelerator had already been used in physical experiments.

In early 1955, the Soviet government helped China construct a 7,000 to 10,000-kilowatt experimental heavy water atomic reactor and a cyclotron capable of accelerating alpha-particles up to 25 Mev. These have now both been constructed.

The core of the reactor consists of uranium rods [immersed] in heavy water. The uranium produces thermal neutrons. The thermal neutrons are produced by the fission of the uranium. This type of reactor is called a chain reaction pile.

The uranium-heavy water system is contained in an aluminum shell, which is, in turn, enclosed in a graphite reflector. From inside to outside, the shielding consists of a steel shell, a layer of water, and, finally, a very thick layer of concrete.

The rate of the reaction is controlled by the use of a great many retractable cadmium rods in the core.

The heavy water also serves the reactor coolant. The heavy water circulatory system transfers its heat to a ordinary water circulatory system. In addition, there is a helium gas circulatory system. The function of this system is to draw off the mixture of deuterium and oxygen gases formed by the reaction of the heavy water in the pile with the emitted gamma rays.

During the construction of the reactor, the Institute of Atomic Energy was aided by personnel from industry, agriculture, and medicine.

Since the reactor produces a large number of neutrons, it is the ideal source of isotopes; the cobalt 60 produced is used in inspecting machinery; the phosphorus 32 is used in agricultural fertilizers.

C-O-N-F-I-D-E-N-T-I-A-L

The cyclotron is used to accelerate such charge particles as the proton, the deuteron, and alpha-particles. The current in the two dees alternates several million times per second. The great amount of heat generated is dissipated by a system in which cold water is evaporated. The workers are shielded from the cyclotron's radiation by a thick layer of concrete.

Radioactive sodium and radioactive phosphorus isotopes are produced by bombardment with deuterons. Isotopes of potassium, calcium, and iron can also be produced. Neutrons can be produced by the bombardment of the nuclei of beryllium, carbon, and aluminum with deuterons. Several tens of thousands to hundreds of thousands more neutrons can be produced in this way than by the use of ordinary radium or beryllium.

SELECTED DETECTION OF NEGATIVE PI MESONS -- Peiping, Wu-li Hsueh-pao, Vol 16, No 8, Dec 60, pp 471-478

[The following is a translation of an abstract appearing, in Chinese, in an article, "A Star-Detector for Negative Pi Mesons," by A. F. Dunaytsev, Yu. D. Prokoshkin, and T'ang Hsiao-wei (1781/1321/1218).]

In contrast to many other particles, negative pi mesons effectively produce stars with large energy releases at their stop-point. This phenomenon was used by the authors for selective detection of negative pi mesons.

The star-detector for negative pi mesons used was a simple scope with two scintillation counters set in coincidence. The first counter was an ordinary counter with 100 percent efficiency for passing particles. The second counter of the star-detector worked on a comparatively low voltage supply. Hence, it detected only the large light impulses produced in the scintillator as a result of negative pi meson stars. The second counter's efficiency for the detection of passing particles was set very low. The photomultiplier of the second counter worked as a spectrometer with a highly stabilized voltage supply. Using this detector, it was possible to measure quickly the range and energy of negative pi mesons. For example, only 15 minutes were needed when the negative pi meson beam intensity was 1,000 per second.

The star-detector was selective with regard to particles. Since it only recorded stars, it did not count the stop-points of other particles, such as negative mu mesons. In such activity, the sensitivity to negative pi mesons is at least 20 times larger than to negative mu mesons.
(CONFIDENTIAL)

ADVANCES MADE IN THE THEORY OF MAGNETOACOUSTIC MODES -- Peiping, Wu-li Hsueh-pao (Acta Physica Sinica), Vol 16, No 8, Dec 60, pp 448-461

/The following is a translation of an abstract appearing in Chinese, in an article, "The Theory of Parametric Oscillation of Magnetoacoustic Modes," by Li Yin-yuan (2621/5593/6678), Leng Chung-ang (0397/1813/2491), and P'an Shou-fu (3382/1343/3940)./

In this paper, we obtained an equation coupling elastic vibrations with magnetic oscillations by applying the classical field theory to a macroscopic formulation of magnetoelastic coupling. The equation was used to analyze the magnetic oscillations (magnetoacoustic modes) of the sonic vibrations whose accompanying wave length was approximately equal to the dimensions of the ferrite specimen used. The paper points out that the magnetoacoustic reaction discovered by Spencer and LeCraw is the parametric oscillation phenomenon produced by the excitation of the magnetoacoustic mode and the magnetostatic mode entering a field. (It could also be referred to as electromagnetic signal amplification of thermal phonons.)

We used the formula given in the paper by Berk et al. on the type of semimagnetostatic amplifier to calculate the power required by the Spencer-LeCraw experiment. The results were in close agreement with recorded data.

We suggest a method involving tuning the magnetostatic mode to the oscillations produced by the magnetoacoustic mode and a reduction in the excitation power during the observation of acoustic frequencies from 90 to 900 megacycles. By analyzing the spatial symmetry of the vector quantities in the alternating field of the magnetoacoustic and magnetostatic modes, we arrived at selection rules for the magnetoacoustic parametric oscillations for a small sphere with three primary elastic modes of vibrations (rotary, radial, and ellipsoidal modes as follows: (1) When the Walker indicatrix of the magnetostatic modes (n, m, r) is even, no magnetoacoustic effect is produced. (2) When m is odd, no magnetoacoustic effect is produced in the rotary mode; when m is even no magnetoacoustic effect is produced in the radial or ellipsoidal modes. We also present an example of how the parametric oscillation produced by the magnetostatic mode of an eigenvibration is only possible when n is even and m is odd.

Since Spencer and LeCraw limited themselves to a magnetostatic field tuned to the 110 mode, the phenomena they observed represent a special case of the theoretical predictions presented in this paper. Although the frequencies of ellipsoidal and radial modes were clearly evident in their work, there were no rotary modes. This provides concrete verification of the selection rules set forth above. Finally, we pointed out that the parametric amplification of the thermal phonons was a possible source of noise in ferrite microwave amplifiers.

(CONFIDENTIAL)

THEORY OF SPIN WAVE EFFECT UPON FERROMAGNETIC ABSORPTION SIMPLIFIED --
Peiping, Wu-li Hsueh-pao (Acta Physica Sinica), Vol 18, No 2, Feb 62
pp 81-90

[The following is an abstract of an article, "The Influence
of the Scattering Between Spin Waves on Ferromagnetic Resonance
Absorption," by P'u Fu-lao (5543/1381/3529) and Cheng Ch'ing-ch'i
(6774/1987/4388).]

This paper presents a simplified method of directly obtaining a
rigorous analytical formulation of ferromagnetic resonance absorption
curves' moments under the influence of spin wave scattering when k is
not equal to 0 (i.e., when precession is irregular). Schloman has
already dealt with this problem, but his method is comparatively com-
plicated and not altogether satisfactory. In addition we use the
perturbation method to discuss the influence of the interaction of spin
waves upon resonance absorption curves. (CONFIDENTIAL)

CORRELATION PHENOMENA OF MANY-BODY SYSTEMS DISCUSSED -- Peiping, Wu-
li Hsueh-pao (Acta Physica Sinica), Vol 16, No 8, Dec 60, pp 462-470

[The following is a translation of an abstract appearing
in Chinese, in an article, "On the Correlation Effect in Many
Body Systems," by Ch'en Ch'un-hsien (7115/2504/0341), Ch'en
Shin-kang (7115/1709/0474), and Huo Yu P'ing (7202/5940/1627).]

Using the generalized self-consistent field method developed by
Ch'en Ch'un-hsien, this paper discusses various correlation phenomena
of many-body systems from a unified viewpoint. The general method of
treatment is proposed and compared with the perturbation method. From
the approximation with two-body correlation, we obtain, as particular
applications, the Bruckner theory of nuclear matter and the Bohm-Pines
theory of the collective oscillation of electron gases. Finally, the
superconductivity and zero-point oscillation in nonideal gases are dis-
cussed by solving the bound state problems with the present method and
the Gellmann Low procedure. It is concluded that the self-consistent
field method is very effective in treating correlation phenomena.
(CONFIDENTIAL)

METHOD TO SUPPRESS LINEAR ARRAY SIDE-LOBES SUGGESTED -- Peiping, Wu-li Hsueh-pao, Vol 17, No 12, Dec 61, pp 592-599

/The following is an abstract of an article, "The Suppression of Linear Array Radiation Pattern Side-Lobes," by Jen Lang (0117/2597) and Lu Ming-szu (4151/2494/0098)./

Jen Lang (0117/2597) suggested a distribution function for the roots of the complex polynomial corresponding to the nulls of the radiation pattern on the unit circle in a complex plane, viz,, $\psi_k = \frac{2\beta k}{1-n}$

$\left\{ 1 \quad \xi_k = \frac{\lambda \xi}{2n} (\pi - 2) \right\}$. β is equal to $\frac{2\pi}{\lambda}$; λ is the distance between lobes; n is the number of the lobe; and $\lambda \xi$ is a parameter freely selected by the designer.

This distribution function includes the uniform distribution suggested by Schelkunoff (Schelkunoff, S. A., "A Mathematical Theory of Linear Arrays," B.S.T.J., Vol 22 (1943), pages 80-107), as a special case (where ξ is equal to one.) Computed results showed that, by means of this distribution function, a better control of the radiation pattern of a nonuniform linear array could be achieved, especially for the suppression of the first few side-lobes near the main beam. Although this is one at the cost of increasing the relatively for off side-lobes, the most far off side-lobes can be suitably reduced by the appropriate shifting of the last null. (CONFIDENTIAL)

FEODOSEV THEORY OF THE BOURDON TUBE MODIFIED -- Peiping, Li-hsueh Hsueh-pao, Vol 5, No 1, Feb 62, pp 8-17

[The following is an English abstract appearing at the end of an article, "A Modified Feodosiev Theory of the Bourdon Tube," by Lo Tsu-tao (5012/4371/6670), Chiao-t'ung University, and Yu Ching-shun (3945/2417/5293), Shanghai Institute of Mechanics (Shang-hai Li-Hsueh Yen-Chiu So; (0006/3189/0500/1331/4282/4496/2076).]

The elastic behavior of an oval Bourdon tube was considered. Vital improvements were made on the original Feodosiev theory for a thick-walled oval Bourdon tube. The new theory thus obtained is applicable to all oval Bourdon tubes. Since the prevailing theories provide no means to evaluate their appropriate ranges of application, it appears that the new theory will be extremely valuable to designers.

A few numerical computations were carried out as illustrations. The discrepancies between the test results and those predicted by the present theory were found to be within 20 percent. Moreover, the new theory agrees closely with Feodosiev's thin-wall theory for relatively thin tubes, while it approaches Feodosiev's thick-wall theory for thick tubes, as expected. Furthermore, the present theory is also applicable to other Bourdon tubes with dumbbell-like cross sections, a theory for which has not been available. (FOR OFFICIAL USE ONLY)

GROWTH OF METAL WHISKERS DISCUSSED -- Peiping, Wu-li Hsueh-pao, Vol 17, No 8, Aug 61, pp 296-302

[The following is a translation of an abstract of an article, "The Mechanism of the Growth of Metal Whiskers by Means of Vapor Reduction," by Ko T'ing-sui (5514/1656/3606) and Wan Yao-kuang (5502/5069/0342), both of the Chinese Academy of Sciences.]

Experiments were made on the growth of copper and iron whiskers by means of vapor reduction. The mechanism of growth was studied in order to find out the effective procedures for growing thick and long whiskers with very high strengths. The growth of whiskers was found to be facilitated when the crystal structure of the grow-boat material was similar to that of whisker. This led to the conclusion that the growth of whiskers is through a mechanism involving an axial screw dislocation. On the basis of observations of the mode of distribution and the direction of growth of the copper and iron whiskers grown on the wall of the boat, it was concluded that the growth of these whiskers proceeded from the tip. Furthermore, experiments showed that the cuprous (or ferrous) chloride vapor was preferentially reduced by hydrogen at the tip of the whisker, presumably because of the catalyzing action of the surface step produced at the tip by a screw dislocation.

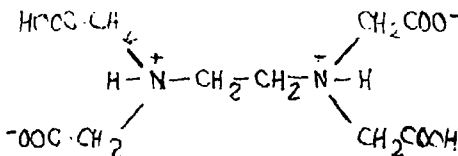
Observations of the growth of thick copper whiskers with a diameter of 50 to 120 microns revealed laminar growth and growth in piled up forms and in layers. Such peculiar growth behavior may possibly be associated with an alternation of one dimensional and two dimensional nucleation and growth. The possibility of growing a piece of bulk crystal free from dislocations by controlling growth condition was discussed. (CONFIDENTIAL)

CRYSTAL STRUCTURE OF EDTA DETERMINED -- Peiping, Wu-li Hsueh-pao (Acta Physica Sinica), Vol 17, No 7, Jul 61, pp 304-309

[The following is a translation of an abstract appearing, in Chinese, in an article, "The Determination of the Crystal Structure of Ethylenediaminetetraacetic Acid," by Lu Yun-chin (4151/0061/6930) and Shao Mei-ch'eng (6730/5019/2052), both of the Chinese Academy of Sciences.]

The crystal structure of ethylenediaminetetraacetic acid (EDTA) was determined by the method of symmetry elements. The crystal is monoclinic; the space group is C_2^6 ; the crystal cell parameters are $a = 13.28 \text{ \AA}$, $b = 5.64 \text{ \AA}$, $c = 16.14 \text{ \AA}$, and $\beta = 83 \text{ degrees } 45 \text{ minutes}$. Each unit cell has four molecules. The interatomic distances are calculated and discussed.

The crystal structure indicates that the two carboxyls of the EDTA form internal molecular hydrogen bonds with the two nitrogen atoms. Therefore, the chemical character of the EDTA can only be that of a dibasic acid. The structural formula of the molecule should be



(CONFIDENTIAL)

LUMINESCENT MATERIALS PURIFIED USING ION EXCHANGE RESINS -- Peiping, Wu-i Hsueh-pao (Acta Physica Sinica), Vol 16, No 8, Dec 60, pp 441-447

[The following is a translation of an abstract appearing, in Chinese, in an article, "The Application of Ion Exchange Resins to the Preparation of Luminescent of Materials," by Wang Fang-jen (3769/5364/0086)]

This paper describes a method of purifying zinc sulfate using ion exchange resins. The nitroso-R-salt was selected as the complex-forming agent, with the help of which, heavy metal ions in zinc sulfate solution

C-O-N-F-I-D-E-N-T-I-A-L

were separated out by the exchanger. The properties of some resins, the amount of complex-forming agents to be applied, the conditions under which ion exchange takes place, and the regeneration of the resins are presented. Results of testing of the final product by different methods are given.

The ion exchange method may also be used for the purification of chlorides of zinc, magnesium, calcium, strontium, barium, sodium, etc. and some of the sulfates. (CONFIDENTIAL).

STUDY ON TOPOLOGICAL METHODS -- Peiping, Scientia Sinica, Vol 11, No 4, Apr 62, pp 453-456

[The following is a full translation of the article, "One Formula of the Index," written by Chen Wen-yuan (7115|2429|1472 +0626) of Lanchow University. The article written in Russian, was received for publication on 9 November 1961.]

One may say that the topological method is the basic method for qualitative research of nonlinear completely continuous operators in the equations:

$$x = \lambda Fx \quad F_0 = 0. \quad (1)$$

In the study it is necessary to find the answer to problems related to the property of the index. The formula [2]:

$$i[I - (\lambda_0 - \varepsilon)B, 0] = (-1)^m i[I - (\lambda_0 + \varepsilon)B, 0] \quad (2)$$

(where $B = F'(0)$; λ_0 is a characteristic number of m -multiples of operator B) played a dominant role in problems on bifurcation points and the approximated solution.

The topological method also entails investigation of the wave equation

$$\varphi(s) = \lambda \int_0^{2\pi} \left(\frac{1}{3} \right) \int \frac{1}{n} \sin ns \sin nt \left(\frac{\sin \varphi(t)}{1 + \int_0^t \sin \varphi(u) du} \right) dt,$$

in which the parameter of λ enters as nonlinear. It should be noted that in this case, the derived operator at the points $\varphi = 0$ will have the form λB [3]. Consequently, formula (2) takes place.

Let us examine the equation in the space E

$$x = F(x, \lambda) \quad F(0, \lambda) = 0, \quad (3)$$

where $[F^{(1)} = F'_x(0, \lambda_0)]$ has an m -dimensional invariant space E_1 , corresponding to the natural number 1. This case interests us because it frequently appears in numerous problems in physics and engineering. [4, 5, 6].

This paper examines a new formula of the index, which provides generalization (2) and warrants establishing a number of results relative to equation (3).

C-O-N-F-I-D-E-N-T-I-A-L

Let the operator $[F(x, \lambda)]$ be completely continuous at each fixed λ , and uniformly continuous along λ . Consequently, $F(1)$ and $[F_1^{(1)} = F_{x\lambda}''(0, \lambda_0)]$ are completely continuous. As is known, it has the form:

$$E = E_1 + E^1,$$

and the representation $x \in E$ in the form $x = x_1 + x^1$ determines the projections of P_1 and P^1 . Let E_1 consist of only natural vectors.

It is easy to see that if $|P_1 F_1^{(1)} P_1|^{-1}$ exists, then $x = 0$ is an isolated zero-point of the operator $[x - F(1)x - (\lambda - \lambda_0)F_1^{(1)}x]$ and $[i|I - F(1) - (\lambda - \lambda_0)F_1^{(1)}, 0] = i[I - F, 0]$. Moreover, there is the theorem: $[i|I - F(1) - sF_1^{(1)}, 0] = (-1)^m i[I - F(1) + sF_1^{(1)}, 0]$.

Proof: Let us examine the operator which is continuous for both variables:

$$\begin{aligned} X(x, t) = X_t x &= [sF_1^{(1)} + (2t - 1)(1 - F^{(1)})]x_1 + \\ &+ [(1 - F^{(1)}) + (2t - 1)sF_1^{(1)}]x^1 \\ x &= x_1 + x^1 \quad 0 \leq t \leq 1. \end{aligned}$$

Since E_1 is a finite-dimensional space and when $[x \in E^1, x - X_t x = (F^{(1)} + (2t - 1)sF_1^{(1)})x]$ then $[x - X_t x]$ is completely continuous.

Now let us prove that $[X_t x \neq 0]$ where $[0 \leq t \leq 1, \epsilon$ and $\|x\| = \rho > 0]$ is sufficiently small.

If this is not so, there is $x = x_1 + x^1, 0 \leq t \leq 1,$

$$X_t(x_1 + x^1) = 0.$$

Substituting an equivalent system

$$\begin{cases} \epsilon[P_1 F_1^{(1)} x_1 + (2t - 1)P_1 F_1^{(1)} x^1] = 0 & (4) \\ \epsilon P^1 F_1^{(1)} x_1 + P^1(1 - F^{(1)})x^1 + (2t - 1)\epsilon P^1 F_1^{(1)} x^1 = 0. & (5) \end{cases}$$

Applying the inverse operator $[|P_1 F_1^{(1)} P_1|^{-1}]$, to equation (4), we obtain

$$x_1 = - |P_1 F_1^{(1)} P_1|^{-1} (2t - 1) P_1 F_1^{(1)} x^1. \quad (6)$$

With F^{-1} completely continuous, E_1 has $|R = |P^{-1}(1 - F^{-1})|^{-1}|$ and β (5) (6) we obtain:

$$x^1 = \epsilon(2t - 1)RP^{-1}F_1^{-1} \{ |P_1F_1^{-1}P_1|^{-1}P_1F_1^{-1} + 1 \} x^1.$$

With F^{-1} completely continuous, E_1 has $|R = |P^{-1}(1 - F^{-1})|^{-1}|$, from (5) and (6) we obtain:

$$x^1 = \epsilon(2t - 1)RP^{-1}F_1^{(1)} \{ [P_1F_1^{(1)}P_1]^{-1}P_1F_1^{(1)} + 1 \} x^1.$$

If $[|\epsilon| < 1 / \|RP^{-1}F_1^{(1)} \{ [P_1F_1^{(1)}P_1]^{-1}P_1F_1^{(1)} + 1 \}\|]$, then $[x^1 = 0]$. From (6) it follows that $x_1 = 0$.

Thus, it is proved that

$$\begin{aligned} i[X_0, 0] &= i[X_1, 0], \\ X_1x &= (I - F^{-1} + \epsilon F_1^{-1})x; \\ X_0x &= (I - F^{-1} - \epsilon F_1^{-1})(-x_1 + x^1). \end{aligned}$$

In order to form a conclusion on the theorem, it suffices that we prove

$$i[X_0, 0] = (-1)^m i[I - F^{-1} - \epsilon F_1^{-1}, 0]. \quad (7)$$

Further, we shall introduce proof (7) as proof of the following more generalized assertion.

If E_1 is an m -dimensional space of the finite dimensional space E , let $[E = E_1 + E^1]$ and $[x = x_1 + x^1, x_1 \in E_1, x^1 \in E^1]$.

If A is a linear operator and when $[x \neq 0, Ax \neq 0]$, and operator B is

$$Bx = B(x_1 + x^1) = A(-x_1 + x^1).$$

Let us denote J by $[Jx = -x_1 + x^1]$ then $[B = AJ]$. According to the theorem on the product of the index, we obtain: $[i[B, 0] = i[A, 0]i[J, 0] = (-1)^m i[A, 0]]$.

By virtue of the fact that the degree of the completely continuous operator equals the degree of the approximating finite-dimensional operator, it follows that:

Lema: Let $E = (B)$ space $[E = E_1 + E^1, E_1] - m$ -dimensional; the operators A and B be completely continuous and $[(I - A)x \neq 0]$ when $[x \neq 0]$

$$(I - B)(x_1 + x^1) = (I - A)(-x_1 + x^1) \quad x_1 \in E_1, x^1 \in E^1,$$

Then $[i[1 - A, 0] = (-1)^m [I - B, 0].]$

The theorem is proved, whence it easily follows that if m is odd, then $[(0, \lambda_0)]$ will be a branch point of equation (3).

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MISCELLANEOUS

KUO MO-JO ENTERTAINS DELEGATION FROM BRITISH ROYAL SOCIETY -- Peiping, Kuang-ming Jih-pao, 24 Sep 62, p 3

KUO Mo-jo, President of the Chinese Academy of Sciences, gave a banquet on the evening of 23 September to welcome the delegation from the British Royal Society lead by Sir [no first name given] Brown, Vice-President of the British Royal Society. The five-man delegation arrived in Peiping in two groups on 22 and 23 September. They are visiting China at the invitation of KUO Mo-jo.

Also attending the banquet were vice-presidents of the Chinese Academy of Sciences Li Ssu-kuang (2621/0934/0342), Chu K'o-chen (4555/0668/2823), and Wu Yu-hsun (0702/2589/6064); many well-know physicists, chemists, and biologists; Huan Hsiang (1360/6763), the former Chinese Charge d'Affaires in England; and Sung Chih-kuang (1345/0037/0342), Deputy Director of the Western European Affairs Department, Ministry of Foreign Affairs.

The members of the British Royal Society delegation included Sir Su-sa-lan, Doctor of Physics and a Biophysicist; Sir T'ang-mu-sun, [Thompson?] of Physics, a Chemist; Mr. Pao-wei-erh, [Bower?] Doctor of Physics, a Chemist; and Prof Wei-t'ing-tun, a zoologist.

BRITISH PHYSICIST ARRIVES IN PEIPING -- Peiping, Jen-min Jih-pao, 28 Sep 62, p 3

The well-known British Physicist Doctor Mendelssohn arrived in Peiping by plane at noon on 27 September. He is visiting China at the invitation of the Physics Society of China. He arrived in Canton from Hong Kong on 20 September, and before arriving in Peiping, he visited Hangchow, Shanghai, Nanking, and other areas.

JAPANESE, CUBAN SCIENTISTS VISIT CHINA -- Peiping, Kuang-ming Jih-pao, 26 Sep 62, p 3

On 25 September, Japanese physiologist Tsuge Hideyomi philosopher Shibata Shingo and Cuban linguist de Pluna arrived in Peiping by plane from Moscow, where they had attended the seventh congress of the World Federation of Scientific Workers and the International Symposium on Higher Education. They are visiting China at the invitation of the Chinese Scientific and Technical Association.

CZECH ACADEMY OF SCIENCES DELEGATION ARRIVES IN PEIPING -- Peiping, Jen-min Jih-pao, 26 Sep 62, p 2

A Czechoslovakian Academy of Sciences delegation, led by Vice-President of the Czechoslovakian Academy of Sciences, Academician K. Siska, arrived in Peiping by airplane on 25 September. The delegation is in China to discuss and sign a scientific cooperation agreement between the Academies of Sciences of China and Czechoslovakia, as well as to set up an implementation plan. The Vice-President of the Chinese Academy of Sciences, Wu Yu-hsun (0702/2589/6064), was at the airport to welcome them.

SINO-CZECHOSLOVAK SCIENTIFIC COOPERATION AGREEMENT SIGNED -- Peiping, Jen-min Jih-pao, 1 Oct 62, p 3

On 30 September, the Chinese Academy of Sciences and the Czechoslovak Academy of Sciences signed a scientific cooperation agreement for the period 1962-1966 and an implementation plan for the period 1962-1963. Signing the documents were, for China, Vice-President of the Chinese Academy of Sciences Wu Yu-hsun (0702/2589/6064), and for Czechoslovakia, Vice-President of the Czechoslovak Academy of Sciences K. Siska.

Kuo Mo-jo (6753/3106/5387), President of the Chinese Academy of Sciences, and J Sedivy, Czechoslovak Ambassador to China, also participated in the signing ceremony. In addition to these, there were Chinese Academy of Sciences Vice-President Chang Ching-fu (1728/0513/1133), Secretary-General Tu Jun-sheng (2629/3387/3932), Deputy Chairman of the Committee on Foreign Languages Ch'u Wu (1448/2976), President of the Chinese Academy of Medical Sciences Huang Chia-ssu (7806/1367/7475), Director of the Fu-wai Hospital Wu Ying-k'ai (0702/5391/1956), Deputy Director of the Ministry of Foreign Affairs Soviet Union and East European Affairs Department Hsu Ming (1776/2494), and Deputy Chief of the Scientific and Technological Commission Bureau of International Cooperation Ch'en Ping (7115/0393).

SOVIET SCIENTIST IN CHINA IDENTIFIED -- Peiping, Scientia Sinica, Vol 11, No 9, Sep 62, pp 1249-1258

Yakov Matveyevich Pressman, visiting investigator from the Physiological Laboratory of the USSR Academy of Sciences in Moscow and affiliated with the Institute of Physiology of the Chinese Academy of Sciences in Shanghai, is coauthor, with Chang Hsiang-t'ung (1728/7449/2717), of the article "Effect of Monocular Illumination on Cortical Response to Optic Nerve Stimulation." The English-language article was received for publication on 12 May 1962.

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[The following biographic information on selected Chinese Communist scientific and technical personnel was taken from sources cited in parentheses.]

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TSOU Yuan-hsi (6760/0337/8764)

CHAO P'eng-nien (6392/1756/1628)

Both affiliated with Institute of Metallurgy, Chinese Academy of Sciences, Shanghai; coauthors of article, "Activity of CaO in Liquid CaO - SiO₂ and CaO - Al₂O₃ - SiO₂ Slags," in English. (Peiping, Scientia Sinica, Vol 11, No 9, Sep 62, pp 1287-1302)

TU Ta-kung (2629/1129/0361), deputy director, Shanghai Municipal Health Bureau. (Shanghai, Chieh-fang Jih-pao, 22 Aug 62, p 1)

WAN Che-hsien (5502/0772/0341), Institute of Mathematics, Chinese Academy of Sciences; author of article, "A Proof of the Automorphisms of Linear Groups Over a Field \overline{Sic} of Characteristic 2," in English; first published in Chinese in Acta Mathematica Sinica, Volume 11, 1961, pages 380-387. (Peiping, Scientia Sinica, Vol 11, No 9, Sep 62, pp 1183-1194)

WANG Kue-hsun

Coauthor, with T. G. Mirchink, of article, "Plant Absorption of Toxins Formed by Soil Fungi," published in Russian in Nauchnyye Doklady Vysshoy Shkoly Biologicheskoy Nauki, No 3, 1962, pages 203-207. (Moscow, Letopis' Zhurnal'nykh Statey, No 39, 22 Sep 62, p 107)

WANG Shao-tsu (3769/3504/4371), deputy director, Fukien Provincial Health Bureau. (Canton, Chung-kuo Hsin-wen, 2 Sep 62, p 9)

WU Fang (0702/2455), Institute of Mathematics, Chinese Academy of Sciences; author of article, "On the Queuing Process GI/M/n," in English. (Peiping, Scientia Sinica, Vol 11, No 9, Sep 62, pp 1169-1182)

WU Hsien-wen (0124/3759/2429), deputy director, Institute of Hydrobiology, Chinese Academy of Sciences; coauthor, with several young researchers, of book, Chung-kuo Ching-chi Tung-wu Chih -- Tan-shui Yu-lei (Economic Animals of China -- Fresh-water Fish). (Peiping, Kuang-ming Jih-pao, 5 Oct 62, p 2)

WU Meng-ch'ao (0702/1322/6389)

HU Hung-k'ai (5170/1347/2818)

CHANG Hsiao-hua (1728/2556/5478)

MAO Tseng-jung (3029/1073/2837)

All of the Surgery Department, Second Army Medical College, Shanghai; coauthors of article, "Observation on Intrahepatic Anatomy of the Normal Human Liver." (Peiping, Chinese Medical Journal, Vol 81, No 9, Sep 62, pp 613-627)

WU Shou-jen (0702/1334/0088), assistant professor and deputy director of Soil and Agricultural Chemistry Department, Northwest University, under guidance of YU Hung-cheng (5731/1347/2973), director of same, is doing research on colloids in soils and clay minerals in brown earth. (Peiping, Kuang-ming Jih-pao, 24 Sep 62, p 2)

YU Men-te (6735/1125/1795)

PAI Chin-ch'uan (4101/6930/3123)

Both of the South China Institute of Botany, Chinese Academy of Sciences; coauthors of article, "The Relationship Between Various Types of Vegetation and Soil Quality in Kwangtung and Kwangsi Provinces." (Peiping, T'u-jang Hsueh-pao, Vol 10, No 1, Mar 62, pp 29-43)

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Washington, DC 20505

7 September 2004

Ms. Roberta Schoen
Deputy Director for Operations
Defense Technical Information Center
7725 John J. Kingman Road
Suite 0944
Ft. Belvoir, VA 22060

Dear Ms. Schoen:

In February of this year, DTIC provided the CIA Declassification Center with a referral list of CIA documents held in the DTIC library. This referral was a follow on to the list of National Intelligence Surveys provided earlier in the year.

We have completed a declassification review of the "Non-NIS" referral list and include the results of that review as Enclosure 1. Of the 220 documents identified in our declassification database, only three are classified. These three are in the Release in Part category and may be released to the public once specified portions of the documents are removed. Sanitization instructions for these documents are included with Enclosure 1.

In addition to the documents addressed in Enclosure 1, 14 other documents were unable to be identified. DTIC then provided the CDC with hard copies of these documents in April 2004 for declassification review. The results of this review are provided as Enclosure 2.

We at CIA greatly appreciate your cooperation in this matter. Should you have any questions concerning this letter and for coordination of any further developments, please contact Donald Black of this office at (703) 613-1415.

Sincerely,



Sergio N. Alcivar
Chief, CIA Declassification Center,
Declassification Review and Referral
Branch

Enclosures:

1. Declassification Review of CIA Documents at DTIC (with sanitization instructions for 3 documents)
2. Declassification Status of CIA Documents (hard copy) Referred by DTIC (with review processing sheets for each document)



Processing of OGA-Held CIA Documents

The following CIA documents located at DTIC were reviewed by CIA and declassification guidance has been provided.

OGA Doc ID	Job Num	Box	Fldr	Doc	Doc ID	Document Title	Pub Date	Pages	Decision	Proc Date
AD0335308	78-03117A	194	1	23	4363	Scientific Information Report Chemistry And Metallurgy (26)	3/7/1963	71	Approved For Release	3/25/2004
AD0335625	78-03117A	197	1	3	4460	Scientific Information Report Chemistry And Metallurgy (27)	4/4/1963	51	Approved For Release	3/25/2004
AD0336825	78-03117A	199	1	26	4562	Scientific Information Report Chemistry And Metallurgy (28)	5/9/1963	70	Approved For Release	3/25/2004
AD0332150	78-03117A	183	1	5	3916	Scientific Information Report Chinese Science (11)	10/4/1962	52	Approved For Release	3/29/2004
AD0332434	78-03117A	183	1	40	3951	Scientific Information Report Chinese Science (12)	10/19/1962	59	Approved For Release	3/29/2004
AD0332795	78-03117A	184	1	37	3988	Scientific Information Report Chinese Science (13)	11/5/1962	48	Approved For Release	3/29/2004
AD0333069	78-03117A	186	1	7	4028	Scientific Information Report Chinese Science (14)	11/16/1962	30	Approved For Release	3/29/2004
AD0333148	78-03117A	187	1	19	4078	Scientific Information Report Chinese Science (15)	11/29/1962	44	Approved For Release	3/29/2004
AD0333835	78-03117A	189	1	6	4144	Scientific Information Report Chinese Science (16)	12/21/1962	65	Approved For Release	3/29/2004
AD0334108	78-03117A	190	1	2	4179	Scientific Information Report Chinese Science (17)	1/10/1963	56	Approved For Release	3/29/2004
AD0334105	78-03117A	191	1	12	4230	Scientific Information Report Chinese Science (18)	1/18/1963	25	Approved For Release	3/29/2004
AD0334378	78-03117A	192	1	21	4277	Scientific Information Report Chinese Science (19)	2/1/1963	27	Approved For Release	3/29/2004
AD0334433	78-03117A	193	1	22	4322	Scientific Information Report Chinese Science (20)	2/15/1963	28	Approved For Release	3/29/2004
AD0335021	78-03117A	194	1	37	4377	Scientific Information Report Chinese Science (21)	3/8/1963	59	Approved For Release	3/29/2004
AD0335847	78-03117A	198	1	33	4526	Scientific Information Report Chinese Science (22)	4/18/1963	61	Approved For Release	3/29/2004
AD0336327	78-03117A	200	1	3	4578	Scientific Information Report Chinese Science (23)	5/2/1963	68	Approved For Release	3/29/2004
AD0337167	78-03117A	201	1	26	4643	Scientific Information Report Chinese Science (24)	5/23/1963	95	Approved For Release	3/29/2004
AD0337777	78-03117A	202	1	27	4687	Scientific Information Report Chinese Science (25)	6/6/1963	52	Approved For Release	3/29/2004
AD0338474	78-03117A	203	1	27	4727	Scientific Information Report Chinese Science (26)	6/20/1963	83	Approved For Release	3/29/2004
AD0338687	78-03117A	204	1	32	4772	Scientific Information Report Chinese Science (27)	7/5/1963	80	Approved For Release	3/29/2004
AD0339386	78-03117A	206	1	4	4820	Scientific Information Report Chinese Science (28)	7/17/1963	32	Approved For Release	3/29/2004
AD0339147	78-03117A	207	1	11	4862	Scientific Information Report Chinese Science (29)	7/30/1963	48	Approved For Release	3/29/2004
AD0340927	78-03117A	208	1	35	4924	Scientific Information Report Chinese Science (30)	8/21/1963	53	Approved For Release	3/29/2004
AD0341855	78-03117A	209	1	43	4974	Scientific Information Report Chinese Science (31)	9/5/1963	46	Approved For Release	3/29/2004
AD0342464	78-03117A	210	1	38	5013	Scientific Information Report Chinese Science (32)	9/16/1963	43	Approved For Release	3/29/2004
AD0342608	78-03117A	211	1	36	5054	Scientific Information Report Chinese Science (33)	9/27/1963	41	Approved For Release	3/29/2004