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**SCIENTIFIC INFORMATION REPORT**  
**CHINESE SCIENCE**  
**(11)**

Summary No. 3916

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SCIENTIFIC INFORMATION REPORT  
Chinese Science (11)

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

VACCINES OF RECENT DEVELOPMENT -- Peiping, Jen-min Jih-pao, 30 Aug 62,  
p 5

[An article entitled, "The State of Artificial Active Immunization," by Ch'en Cheng-jen (7115/2973/0088), gives fragmentary information on this subject as follows.]

During the past 3 years, China has been manufacturing a live poliomyelitis vaccine. It has been used to vaccinate about 4.5 million children in more than 10 municipalities, as reported by Ku Fang-chou (7357/2455/5279) et al. Drops of the live vaccine were put on crackers which were fed to the children. Seasonal outbreaks of poliomyelitis were thereby put under control.

Chinese scientists Huang Chen-hsiang (7806/4393/4382) and Chu Fu-t'ang (2612/4395/2768) have reported preliminary results of the use of a live measles vaccine. The results were identical to those reported by scientists elsewhere in the world -- that the live vaccine conferred immunity in most vaccinated children after inducing a 3-day elevation in temperature in 83% of them and a 2-3 day rash in about 50%. The Measles Research Group of the Shanghai Infectious Disease Group (Shang-hai Ch'uan-jan-ping Chuan-t'i-tsu; 0006/3189/0278/2676/4016/1413/7344/4809) reported similar results with a group of 640 susceptible children. The only drawback was the difficulty in determining the correct dosage of gamma globulin or placenta globulin to be administered to each child in conjunction with dose of the live measles vaccine. An overdose of placenta globulin prevents a lasting immunity. Too small a dose fails to mollify the reaction to the vaccine.

For a long time China has been using a typhoid vaccine prepared from killed cultures. The pyrogens and toxins contained in this type of vaccine induces reactions in 10% of patients. In recent years Chinese scientists prepared purified typhoid antigens for prophylactic use. In clinical trials only 2% of patients reacted to injections of the purified typhoid antigens. The immunity conferred on laboratory animals was considered good. However, the antigen preparation still needs improvement. Nevertheless, it is believed that the best agent for artificial active immunization against typhoid would be a live vaccine prepared from non-toxic culture selected by controlled variation.

The administration of varied prophylactic materials in combination is called combined immunization. A mixed preparation of diphtheria and tetanus toxoids and typhoid vaccine is known. Since both tetanus and emphysematous anthrax pathogens produce toxins, some people believe that

a mixed preparation of the corresponding toxoids could be as effective as two monovalent toxoids. Others believe that botulism toxoid could be added to such a mixed toxoid. The author believes that combined immunization should be promoted with precautions, giving due consideration to the appropriate antigen ratios of mixed preparations, the time interval between immunization shots, and the state of immunity conferred.

In past years, a B-encephalitis virus vaccine grown on mouse brain tissue was used [in China] to lower the incidence of B-encephalitis. But when the possibility that mouse brain could contain sensibilogens was considered, chick embryo tissue cultures were used instead. The experimental stage of the work has been completed and the new vaccine is being used in encephalitis-prevalent areas. It produces only slight reactions but high antibody titers. Not one among 50,000 persons who received two injections of the new vaccine contracted the disease during a period when 22.6 out of every 100,000 persons in the same area who was not vaccinated caught it.

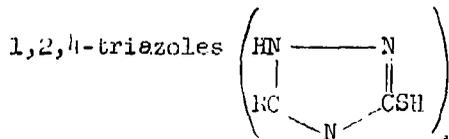
SCREENING OF ANTI-TUBERCULOSIS DRUGS REPORTED -- Peiping, K'o-hsueh T'ung-pao, No 8, Aug 62, pp 37-39

[The following is an abstract of an article entitled, "Acyl-Thiosemicarbazones and Their Related Compounds," by Ch'en Yao-tsu (7115/3613/4371) and Chang Tzu-i (1728/5361/5030), Department of Chemistry, Lan-chou University.]

The article mentions the routes employed by the authors in the preparation of 21 new compounds which reportedly are now undergoing tests for activity against tubercle bacillus. They include twelve 1-aryl-4-acyl-thiosemicarbazones (R<sup>1</sup>NHNCNHCOR'), six 1-isonicotinyl-4-acyl-



thiosemicarbazones (N<sup>1</sup>CONHNHCNHCOR), and three 5-hydrosulfuryl-



Talbes are presented to show the equivalents of R and R' in each compound, percentage yields, and melting points.

A footnote states that the synthesis of some of these compounds was reported in Chung-kuo Hua-hsueh Hsueh-jui 1957 Nien-tu Lun-wen Pao-kao-hui Lun-wen Chai-yao (Abstracts of Papers Presented at the 1957 Reports Conference of the Chemical Society of China), p 211, and that Ni Yin-hao (0204/4244/4110) participated in some of the experiments.

CURE AND PREVENTION OF GLANDERS DISCUSSED -- Peiping, Kuang-ming Jih-pao, 27 Aug 62, p 1

The Heilungkiang Provincial Society of Veterinary Medicine met recently to discuss glanders. It was agreed that the major cause for the spread of the disease is infected horses. They recommended, therefore, stricter control in order to prevent communication of the disease. There was some contention over whether or not to include carriers and infected horses under the same controls.

It was agreed that the most troublesome problem, at present, in the treatment of glanders was the lack of uniformity in the dosages used. It was suggested that definite dosages of drugs should be assigned according to the horse's weight and build. Further research was encouraged on some problems encountered during the convalescent period.

NEW VARIETY OF HYBRID WHEAT DEVELOPED BY YOUNG AGROBIOLOGIST -- Peiping, Kuang-ming Jih-pao, 22 Aug 62, p 1

Li Chen-sheng (2621/2182/5116) and his associates in the laboratory of the Genetics Division, Northwest Institute of Agrobiolgy, Chinese Academy of Sciences, have developed a new strain of wheat by hybridization. Li Chen-sheng's co-workers, Ch'en Shu-yang (7115/3359/7122), Liu Kuan-kuei (0491/0385/6510), and Li Jung-ling (2621/1369/3781), were all graduated from colleges and technical schools since the liberation.

ILLUSTRATED GUIDE TO MEDICINAL PLANTS TO BE PUBLISHED -- Peiping, Jen-min Jih-pao, 29 Aug 62, p 2

The Pharmacognosy Teaching and Research Section, Mukden Pharmacy College, recently completed the first volume of Tung-pei Yao-yung Chih-wu Yuan-se T'u-chir [Full Color Illustrated Guide to Medicinal Plants of the Northeast]. This publication is China's first guide to medicinal plants that has been illustrated in full color. The structure, anatomy, and medicinal uses of over 200 varieties of plants are presented in this guide. This book, published by the Universal Science Press, represents two years of work by over 600 instructors and students of the Pharmacognosy Teaching and Research Section of Mukden Pharmacy College.

NURSERY LABORATORY STUDIES HERB CARE -- Peiping, Kuang-ming Jih-pao, 28 Aug 62, p 2

The Scientific and Technological Laboratory of the Tientsin Herb Nursery has been studying the techniques of herb care and insect pest control for the past few years. The laboratory has been conducting classes in these subjects for health departments in the Tientsin area; 114 technicians have been trained.

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

KWANGTUNG SOCIETY OF OCEANOGRAPHY ESTABLISHED -- Canton, Chung-Kuo Hsin-wen Pao, 30 Aug 62, p 7

The Kwangtung Provincial Society of Oceanography and Limnology has just been organized. Fei Hung-nien (6316/3414/1628) was elected chairman of the board of directors of the society. Among other board members are Hsiung Ta-jen (3574/1129/0088) and P'an Chiung-hua (3382/3518/5478), along with 14 other persons.

CHINESE SOCIETY OF ANATOMY HOLDS ANNUAL CONFERENCE -- Peiping, Kuang-ming Jih-pao, 6 Sep 62, p 1

The Chinese Society of Anatomy held its 1962 conference from 28 August 1962 to 2 September 1962 in Shanghai. More than 80 delegates from 51 research organizations, higher medical colleges, schools and other units presented 281 reports to the conference.

The two topics featured most prominently at the conference were the close relationship between cell division and the growth of tumors, and acupuncture and moxibustion. The cytological aspects most thoroughly gone into were the secondary microscopic structure of cells, the control of cell division, the effect of drugs upon cell nuclei, and the control of cell division by means of X-rays.

At this meeting, Chang Yun (1728/9462) was elected chairman of the board of Directors of the society; Wu Ju-k'ang (0702/3067/1660) was elected vice-chairman.

SUCCESSSES ACHIEVED IN COTTON EXPERIMENTS -- Canton, Chung-Kuo Hsin-wen Pao, 3 Sep 62, p 5

The Institute of Cotton, Chinese Academy of Agricultural Sciences, has carried out successfully their experimental growing of sea island cotton in the Yellow River basin area. The experiments, begun in 1960, were carried out under the direction of Hu Ching-liang (5170/4544/5328), Deputy Director of the Institute of Cotton.

MEDICAL TEAM FROM NANKING LECTURES IN TSINGHAI -- Peiping, Kuang-ming Jih-pao, 30 Aug 62, p 1

At the request of the Health Department, Tsinghai Province, a group of lecturers from the Nanking area has been in Tsinghai Province lecturers from the Nanking area has been in Tsinghai Province lecturing on their experiences for the past 20 days. The members of the group included professors of psychiatry, heart medicine, communicable diseases, and anesthesiology, among others, from Nanking Medical College. The group visited

the Tsinghai Provincial Peoples Hospital and other provincial medical units during its 20-day lecture period. Liu Yen-kung (0491/3601/0361), Vice President, Nanking Medical College, was in charge of the lecture team.

CHRONIC DISEASE CLINIC ESTABLISHED IN KUEI-YANG -- Peiping, Kuang-ming Jih-pao, 5 Sep 62, p 1

During 1962, the Kuei-yang Municipal Peoples Hospital No 1 set up a clinic to deal with chronic diseases. Each day, approximately 1,000 persons are examined by this clinic. Of the examinees, over 40 percent are found to be suffering from chronic diseases.

METHOD OF APPLYING CHEMICALS TO COMBAT BORERS IMPROVED -- Peiping, Kuang-ming Jih-pao, 5 Sep 62, p 1

The Institute of Plant Protection, Hopeh Provincial Academy of Agricultural Sciences, has improved methods for applying insecticide 666 to combat the millet borer. The new method involves the application of 666 directly to the soil rather than spraying it on the leaves. Using this new method, 20 or 30 days may be allowed to elapse before reapplication of the pesticide.

SHELTER BELTS USED TO IMPROVE SAND DUNE AREAS IN KWANGTUNG -- Peiping, Tili, No 2, Feb 62, pp 52-54

[The following is a summary of an article, "Improvement of the Sand Dune Areas Along the Kwangtung Coast," by Huang Chen-kuo (7806/6966/0948), Chien Kuan-tzu (5054/1401/1311), and Huang Tao (7806/6670), no affiliations given.]

The sand dune area along the coast of Kwangtung Province is a serious source of trouble to both agriculture and communications. The area now covers 110,000 mou of land, an increase of 1,000 mou in the last 20 years. Not only is this area lost to agricultural production, but in addition waterway communications are obstructed by sand accumulation in the ports.

Outstanding results, however, have been achieved since 1955 by the planting of shelter belts of *Casuarina equisetifolia* by the following hsien: Tien-pai, Yang-chiang, Tung-hsing, Ch'ao-yang, Hai-feng, and Wen-ch'ang. Since 1958, Tien-pai Hsien has succeeded in reclaiming over 500 mou of land in this way and in converting an additional 1,400 mou of single-cropped land to double-cropped. Over 20 communes in Ch'ao-yang, Jao-p'ing,

and P'u-ning Hsien have increased the area under cultivation by over 12,000 mou since the planting of their shelter belts in 1959; they have converted over 13,000 mou from single-to double-cropped land. (FOR OFFICIAL USE ONLY)

CONFERENCE CALLED BY CHINESE PEDOLOGY SOCIETY -- Peiping, K'o-hsueh T'ung-pao, No 8, Aug 62, pp 47-48

The Chinese Pedology Society held a conference in Nanking from 25 June to 1 July 1962. The conference was attended by over 50 delegates and received a total of 125 papers. Four discussion groups were organized on the basis of the subject matter of these papers. One group discussed chemical, organic, and other fertilizers. A second dealt with the physical, chemical, and physiochemical nature of the soil. The third group discussed soil classification, and a fourth the improvement of saline soils.

Some of the delegates in the fertilizer discussion group maintained that organic fertilizers have been overstressed recently, causing some to ignore the virtues of chemical fertilizers. There were comparatively few papers presented dealing with the improvement of saline soil.

RESEARCH ON SOIL SALINATION CONDUCTED -- Peiping, Kuang-ming Jih-pao, 25 Aug 62, p 1

This year, the Institute of Soils, Chinese Academy of Sciences, has been carrying out research on soil salination in northern Honan Province, the Liao-ch'eng area of Shantung Province, and in northern Kiangsu Province. The research, carried out under the direction of Hsiung I (3574/3015), has been directed at determining the causes of secondary soil salination and the discovery of methods for its rectification.

Part of their research, which was carried out under the guidance of the Honan Provincial Party Committee, has been reported [in Chinese] in a paper entitled "The Form and the Treatment of Drought, Floods and Salination in the Hsiang-pei Plain."

METHOD FOR INCREASING NITROGEN CONTENT OF SHALE DEVELOPED -- Peiping, Kuang-ming Jih-pao, 22 Aug 62, p 1

The Liaoning Provincial Institute of Soils and Fertilizers (Liaoning Sheng T'u-jang Fei-liao Yen-chiu So; 6697/1380/4164/0960/1099/5142/2436/4282/4496/2076) and the Fu-shun Shale Fertilizer Exploitation Office working in close conjunction with one another, have developed a way of increasing the nitrogen content of shale from 0.4 percent to one percent. The method used to raise the percentage of soluble nitrogen involves heating piles of shale fertilizer in order to drive the ammonia fumes to the surface layer.

## CHEMISTRY AND CHEMICAL TECHNOLOGY

NATIONAL FLUIDIZATION CONFERENCE HELD IN PEIPING -- Peiping, Kuang-ming Jih-pao, 31 Aug 62, p 1

The Department of Technical Sciences, Chinese Academy of Sciences, the Chinese Society of Chemistry and Chemical Engineering (Chung-kuo Hua-hsueh Hua-kung Hsueh-hui; 0022/0948/0553/1331/0553/1562/1331/2585), and the Chinese Society for Metals jointly held a national Fluidization Conference from 20 to 25 August in Peiping. More than 200 representatives from production departments, higher level schools, and research organizations, attended the conference. They read and discussed 78 papers and research reports.

Fluidization is a new technique in chemical engineering which handles solid material in particle form as fluids. Although this technique has gained wide application in many fields in the past 15 years, it has been in use in China for only about 5 or 6 years.

The conference reviewed accomplishments in fluidization technology and its contribution to the national economy in the years since the great leap forward. It has already been widely adopted in the chemical, metallurgical, and petroleum industries. In the field of basic theoretical work, the Institute of Chemical Engineering and Metallurgy has carried out a series of systematic studies on the theory of powder fluidization. On the basis of results of many years of research, researcher Kuo Mu-sun (6753/1970/1327) of the Chinese Academy of Sciences submitted the new concept of "particle chemistry fluid mechanics" to the conference. This new branch of the technical sciences cuts across physical and chemical phenomena in many different chemical engineering processes (petroleum, metallurgical, coal processing, light industry, and atomic energy) which employ fluid systems containing particles.

After the presentation of papers and reports, the conference broke up into small groups which discussed common problems in the application of fluidization, such as multi-layered beds, distribution boards, dust removal and etc. Hou Te-pang (0186/1795/2831), chairman of the board of directors of the Chinese Society of Chemistry and Chemical Engineering, and Vice Minister of Chemical Industry, was present at the conference from beginning to end. Hou Hsiang-lin (0186/4382/7792), member of the department committee of the Chinese Academy of Sciences and the secretary general of the Chinese Society of Chemistry and Chemical Engineering, represented the presidium of the conference in summarizing it.

COLLEGE CHEMISTRY DEPARTMENT MAKES PREPARATION FOR FOUNDATION COURSES --  
Peiping, Kuang-ming Jih-pao, 26 Aug 62, p 2

As preparations for raising the quality of instruction in the coming semester, the Chemical Engineering Department of Peking Engineering College has carried out all the necessary preparations for planning courses and experiments in its foundation subjects. Both the department and the teaching and research sections have inspected the work and found it to be well done.

Instructors and laboratory personnel of the Physical Chemistry Teaching and Research Section have carried out all the preparatory work needed for the five experiments which will be performed in the coming semester. The Organic Chemistry Teaching and Research Section has specified a series of questions which must be answered by the student before performing each experiment. This procedure will improve quality and the safety factor of the laboratory work.

An attempt has been made to make the experiments comparable to current industrial procedures. For instance, in its distillation tower experiment, the Chemical Engineering Processes and equipment Teaching and Research Section formerly specified a load of 140 metric tons of material. On the basis of this requirement, the diameter of the tower would have to be 3 meters or more. Since this large tower is very seldom used in industry, the scale of the experiment was accordingly reduced.

Among the instructors in the Chemical Engineering Department who spent a great deal of time in these preparations were professors Jung Tzu-hsing (2837/1311/281), Wang Ch'eng-ro (3069/2052/2672), and Chang Kuo-hsiung (1728/0948/3574).

NEW JOURNAL ON SILICATES PUBLISHED -- Peiping, Chien-chu Hsueh-pao,  
No 2, Feb 62, p 35

The Vol I, No 1 issue of Kuei-suan-yen Hsueh-pao (Journal of Silicates) was published in Peiping on 15 February 1962. The new journal is a technical quarterly publication which carries articles on research achievements and production experiences related to silicates. Prepared by the Silicates Society of China (Chung-kuo Kuei-suan-yen Hsueh-hui; 0022/0948/3701/6808/7770/1331/2585), the journal succeeds Kuei-suan-yen (Silicates). Subscriptions may be placed with local post offices.

INSECTICIDES FOR INSECT PESTS STUDIED IN NINGSIA -- Peiping, Jen-min Jih-pao. 24 Aug 62, p 2

Several entomologists in the Ningsia Hui Autonomous Region have been studying insect pests that attack the famous Chinese herb *Lysium chinense*. The researchers, who are from the Ningsia Hui Autonomous Region Institute of Agricultural Sciences, have been studying the problem of pest control since 1959. Among the insecticides found effective were 666, in both powdered and liquid forms, and sprays made up of lime-thionic compounds, Malthion, Dipterex, and "lo-kuo" (2867/2654), [a new organophosphorus insecticide, according to another source.].

APPLICATION OF MODIFIED WOLFF-KISHNER REDUCTION -- Peiping, Hua-hsueh Hsueh-pao (Acta Chimica Sinica), Vol 27, No 1, Oct 61, pp 1-9

[The following is a description of a research paper, "The Modified Wolff-Kishner Method," by Huang Ming-lung (7806/7686/7893), Chung T'ung-sheng (0112/0681/3932), Ku Tu-hsin (7357/2629/2450) and Chou Wei-shan (0719/4850/0810), Institute of Organic Chemistry, Chinese Academy of Sciences.]

The article reports details of experiments conducted to further extend the scope of application of the modified Wolff-Kishner reduction method. The technique was used to study the reduction processes of some organic compounds which could not be reduced by the original Wolff-Kishner reaction due to their being alkaline-sensitive and easily decomposed or for some other reason. The compounds studied included alpha, beta, and gamma diketones; alpha ketols; alpha, beta and gamma keto-acids; and alpha and beta unsaturated aldehydes and unsaturated ketones.

The authors note that the study was reported briefly in a research note published in the No 23, 1957 issue of K'o-hsueh T'ung-pao, page 238 but that the details are presented in the present paper.

A footnote states that Ku Tu-hsin, one of the coauthors, is [presently] with the Peoples Liberation Army Academy of Medical Sciences. (CONFIDENTIAL)

RESEARCH UNITS DEVELOP NEW AGROCHEMICALS -- Peiping, Kuang-ming Jih-pao, 6 Sep 62, p 1

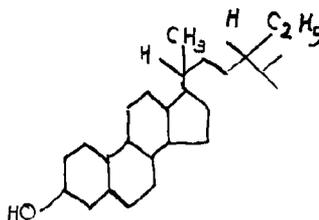
In the last few years, the Agrochemical Teaching and Research Laboratory, Institute of Plant Protection, Chinese Academy of Agricultural Sciences, has developed several new pesticides, fungicides, and weed killers. The organo-phosphorus insecticide 1605, developed with the aid of research done at Peking Agricultural College, has already been put into mass production. The use of concentrated 1605 and concentrated DDT have been found highly effective.

The Agrochemical, Organic Chemistry, and Biochemistry Teaching and Research Sections of the Soil Chemistry Department, Peking Agricultural University have developed a new agrochemical called "-kuo" (2867/2654), an organo-phosphorus ester type of agrochemical, found to be more lethal to insects than 1059 or 1605, while at the same time being less poisonous to higher animals. "Lo-kuo" is now being mass-produced in agrochemical plants in Shanghai and Peiping.

ESTABLISHES CONFIGURATION OF SITOSTEROL AT  $C_{24}$  -- Peiping, Hua-hsueh Hsueh-pao (Acta Chimica Sinica), Vol 28, No I, Feb 62, pp 68-70

[The following is an abstract of a research note entitled, "The Absolute Configuration of Gamma-Sitosterol at  $C_{24}$ ," by Huang Wei-yuan (7806/4850/0997) and Hsu Chinwen (1776/6930/2429), Institute of Organic Chemistry, Chinese Academy of Sciences.]

The article reports the results of experiments by which the authors established the absolute configuration of gamma-sitosterol [ $C_{26}H_{44}O$ ] at  $C_{24}$  to be 24 $\alpha$ -ethyl cholesterol, represented as follows:



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

This configuration, deduced by comparing the known absolute configuration of the asymmetric carbon atom in limonene with those of oxidation products of the gamma-sitosterol side chain, is different from the configuration determined by W. Bergmann and others using the molecular rotation method but in agreement with the results of work reported independently by Japanese chemists K. Tsuda et al. (1959) and Y. Kishida (1960).

A footnote states that the research plan for the project reported in this article was discussed at the 1956 inaugural meeting of the scientific committee of the Institute of Organic Chemistry and preliminary results were presented at the institute's 1957 work conference.

The article was received for publication 5 August 1960. (FOR OFFICIAL USE ONLY)

TABLE OF CONTENTS OF CHEMISTRY BULLETIN -- Peiping, Hua-hsueh T'ung-pao, No 6, Jun 62

"Developments in the Synthesis of Silicone Rubbers" (pp 1-10) [An abstract of this article appears in this report on pages .]

"The Physicochemical Properties of Nucleic Acid Solutions" (pp 11-22) [An abstract of this article appears in this report on pages .]

"The Separation and Determination of Niobium and Tantalum," by Yu Ju-ch'in (0205/3067/0530) [no affiliation given] (pp 23-29) [The article reviews the literature on the subject.]

"The Chemistry of Dithiocarboxylic Acid and Its Sulfur Amide Derivatives," by Chiang Shang-hsin (5592/1424/0207) [no affiliation given] (pp 29-37) [The article reviews the literature on the subject. According to the text, Prof Ko Huai-ch'eng (5514/2037/6134) offered the author many suggestions.]

"The Applications of the X-Ray Powder Method in Inorganic Chemical Research" (pp 38-44) [An extract from this article appears in this report on pages .]

"Several Synthetic Perfumes Derived From Styrene," (pp 44-48) [An extract from this article appears in this report on pages .]

"Gas-Liquid Chromatographic Analysis of Methyl Chlorosilanes"  
(pp 49-51) [An extract from this article appears in this report on  
pages .]

"Studies of Temperature -- Mechanical Property Curves for  
Thermosetting Resins I. Temperature -- Mechanical Property Curves  
for Epoxy Resins With Differing Degrees of Hardness," by Wu  
Shih-k'ang (0702/0013/1660) and Chang Yu-chen (1728/3768/2182)  
[no affiliations given] (pp 52-54) [This paper was received for  
publication 13 April 1963. The authors acknowledge the guidance of  
Prof Ch'ien Jen-yuan (6929/0086/0337).]

"The Analysis of Copper Ores -- The Separation of Primary and  
Secondary Ores," by Hsueh Tsu-nung (5641/4371/6593) and Lin Pao-hua  
(2651/1405/7520) [no affiliations given] (pp 55-58) (FOR OFFICIAL  
USE ONLY)

LITERATURE ON DEVELOPMENTS IN SYNTHESIS OF SILICONE RUBBERS REVIEWED  
-- Peiping, Hua-hsueh T'ung-pao, No 6, Jun 62, pp 1-10

[The following is an abstract of an article, "Develop-  
ments in the Synthesis of Silicone Rubbers," by Chiang  
Ying-yen (3068/5391/1750), no affiliation given. The  
article reviews the literature on the subject by references  
to an extensive bibliography which includes references to  
US, British, and [West?] German patents as well as US,  
British, Russian, and Japanese publications.]

This article introduces the latest developments in the poly-  
merization of, and curing methods for, silicone rubbers. The  
properties and methods of synthesis of four new varieties of silicone  
rubbers are presented: methyl-phenyl-silicone rubber, ethene-silicone  
rubber, fluoro-silicone rubber, and cyano-silicone rubber. Cyano-  
silicone rubber has been used in artificial satellites, the author  
notes. (FOR OFFICIAL USE ONLY)

PROPERTIES OF NUCLEIC ACIDS DISCUSSED -- Peiping, Hua-hsueh T'ung-pao,  
No 6, Jun 62, pp 11-22

[The following is an abstract of an article, "The  
Physicochemical Properties of Nucleic Acid Solutions,"  
by P'ang I-hui (1690/6318/1979), no affiliation given.]

This article stresses the importance of research on RNA and  
DNA. Their structures are described and the physicochemical pro-  
perties of RNA solutions and DNA solutions are discussed. Problems  
requiring further research are indicated. The synthesis of RNA by  
living organisms is said to be a particularly promising area for  
study. (FOR OFFICIAL USE ONLY)

X-RAY POWDER PHOTOGRAPHY USED IN CRYSTALLOGRAPHIC RESEARCH -- Peiping, Hua-hsueh T'ung-pao, No 6, Jun 62, pp 38-44

[The following is an extract from an article, "The Applications of the X-Ray Powder Method in Inorganic Chemical Research," by Chou Kung-tu (0719/0361/1653), no affiliation given.]

Many Chinese higher schools and scientific research organizations now have crystallographic laboratories; almost all of these laboratories possess [x-ray] powder photography equipment for use in research. This paper presents some of the more important concrete applications of this method that have been used in inorganic chemical research.  
(FOR OFFICIAL USE ONLY)

STYRENE BEING USED IN THE PRODUCTION OF SYNTHETIC PERFUMES -- Peiping, Hua-hsueh T'ung-pao, No 6, Jun 62, pp 44-48

[The following is an extract from an article, "Several Synthetic Perfumes Derived From Styrene," by Wang Mu-yao (3769/1970/1031), no affiliation given.]

There has been a great increase in the production of styrene in China in the past year. Styrene, in addition to being an important material in the plastics industry, is becoming a key raw material in the perfume industry. Styrene, because of its cheapness, abundance, and ease of procurement, and ease of procurement, has become an important source of many types of synthetic perfumes such as phenylethyl alcohol and styralyl alcohol, among others. (FOR OFFICIAL USE ONLY)

CHROMATOGRAPHIC ANALYSIS OF METHYL CHLOROSILANES IMPROVED -- Peiping, Hua-hsueh T'ung-pao, No 6, Jun 62, pp 49-51

[The following is an extract from an article, "Gas-Liquid Chromatographic Analysis of Methyl Chlorosilanes," by Chang Te-su (1728/1795/4479), Ts'ai I-ch'i (5591/0044/0047), Yang P'eng-t'ao (2799/7720/3447), and Ch'ien Jen-yuan (6929/0086/0337), no affiliations given. The paper was received for publication 27 April 1962. Wu Jen-hao (0702/0086/3185) and Ch'en Shou-hsi (7115/1108/5032) reportedly assisted with the analysis and Yang Ch'e'chi (2799/4851/1015) with the designing.]

It was discovered that when nitrobenzene was used as a fixed liquid, microscopic amounts of the nitrobenzene escaped in the flow of carrier gas eluted from the chromatographic column. This was dangerous for the experimenters and altered the concentration of fixed liquid in the column in an indeterminate way, seriously impairing the repeatability of the separation results. Eventually a fixed liquid composed of 2-chloronitro benzene, silicon oil 703, o-dibutyl phthalate, and 2-nitro diphenyl was used. As the experiments demonstrated, only 2-nitro diphenyl had the capacity to completely separate the four kinds of chlorosilanes. The arrangements for the addition of samples were also improved, thus basically eliminating the possibility that the chlorosilanes would be resolved by encountering moist gases, and thereby improving the sensitivity of the analysis. A stable and simple arrangement was designed for the tungsten filament thermal conductivity cell that improved the accuracy of its readings. (FOR OFFICIAL USE ONLY)

SURVEY ARTICLES APPEAR IN CHEMISTRY BULLETIN -- Peiping, Hua-hsueh T'ung-pao (Chemistry Bulletin), No 5, May 62

[The following among other articles appear on pages as indicated below.]

"The Alkylation of Boranes," by Huang Liang (7806/2733), pp 1-8 [a review of the literature]

"D-Homo-Steroids," by Tsai Tsu-yun (5591/4371/1926), pp 9-17, [survey article]

"The Influence of the Spatial Structure of Inorganic Oxy-Acids Upon Redox Stability," by Hsu Shao-ling (1776/4801/7881), pp 18-24 [a survey article]

"Circuit Analysis of the Model 871 Photographic Recording-Type Polarograph Manufactured in China," by Fang Yu-chih (2455/4416/0037), pp 53-58 (FOR OFFICIAL USE ONLY)

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"The Preparation of  $\beta$ -Ketoethers From Methyl Vinyl Ketone and Alcohols," by Ting Hsin-t'eng (0002/2450/7506) and Wu Chum-ho (0702/6874/0735), both of the Chemistry Department, Fu-tan University (pp 1-4) [The paper was received for publication 9 April 1960; part of the paper was presented to the Shanghai Society of Chemistry and Chemical Engineering in December 1959, according to a footnote.]

"Adsorption of Organic Surface-Active Substances at the Dropping Mercury Electrode in Alkaline Solution," by Ch'a Ch'uan-hsing (2686/0356/1840) and Huang Te-tung (7806/1795/2639), both of the Chemistry Department, Wu han University (pp 5-11) [The paper was received for publication 11 July 1960; a footnote adds that Ao Hsi-ying (2407/6932/5391), Yeh Shih-yuan (5509/0013/0337), and Ch'eng Chao-hsin (2052/0340/2946) participated in the installation of apparatus and in the measurements.]

"On the Separation and Determination of Scandium and Thorium by Means of m-Nitrobenzoic Acid," by Liang Shu-ch'uan (2733/2885/2938) and Hung Shui-chieh (3163/3055/4105), both of the Institute of Chemistry, Chinese Academy of Sciences (pp 12-19) [The paper was received for publication 16 August 1960; according to the author, Li I-yu (2621/0044/7183) participated in part of the experiment, Huang P'ei-yun (7806/0160/0061) and Ch'en Hui-o (7115/1979/1230), of the Organic Elements Microanalysis Division, Institute of Chemistry, assisted in the determination.]

"Gravimetric Determination of Beryllium With Benzoylacetone," by Liu Shao-ling (0491/1421/7117) and Yin T'ien-chen (1438/1131/4176), both of the Chemistry Department, Lanchow University (pp 20-24) [The paper was received for publication 12 September 1960.]

"Active Components of the Chinese Drug 'Ch'in P'i,'" by Mei Pin-fu (2734/2430/1133), Hsu Chieh-ch'eng (1776/2638/6134), and Wang Yu (3076/3731), all of the Institute of Organic Chemistry, Chinese Academy of Sciences (pp 25-30). [The paper was received for publication 16 September 1960; according to a footnote it had had been read before the 1959 Conference of the Shanghai Society of Chemistry and Chemical Engineering.]

"Studies on Vitamin D (IV) The Synthesis of Compounds of 2-Substituted-Cis-Cyclohexylidene Acetic Acid Type 3: 2-Hydroxymethyl-Cis-Cyclohexylidene Acetic Acid and Mannich-Braun Compound," by Wang Yu (3076/3731) and Huang Ching-chien (7806/2417/1017), both of the Institute of Organic Chemistry, Chinese Academy of Sciences (pp 31-43) [The paper was received for publication 15 December 1960; according to a footnote it forms part of author Huang's research thesis; its important points were reported on at the December 1959 Conference of the Shanghai Society of Chemistry and Chemical Engineering.]

"Polymethylmethacrylate in Mixed Solvents (V) The Relationship Between Intrinsic Viscosity and End-to-End Distance in Methylacetate-Ethanol," by Ch'ien Jen-yuan (6929/0086/0337) and Shih Liang-ho (2457/5328/0735), both of the Institute of Chemistry, Chinese Academy of Sciences (pp 44-51) [The paper was received for publication 1 March 1961; a footnote indicates that Yen (7346) [given name illegible] and Chou Min-ch in (0719/3046/0284) participated in part of the experiments.]

"Studies on the Chemical Constituents of Ginkgo Bilboa L.: Hydroginkgolonic Acid," by Fu Feng-yung (0265/0023/3057), Yu Te-ch'uan (0060/1795/3123), Sung Wei-liang (1345/4850/5328), Chai Yun-feng (5049/0061/7685), and Sun Nan-chun (1327/0589/0689), all of the Research Institute of Materia Medica, Chinese Academy of Medical Sciences (pp 52-56 [The paper was received for publication 14 April 1961, according to a note])

"The Synthesis of Silcarbosiloxane Type Polymers (I.) Synthesis and Hydrolytic Polycondensation of Methyl Ethoxydisilyl-methanes," by Wang Pao-jen (3769/5508/0088), Cheng Yu-chu (6774/0645/5467), Huang Chih-tang (7806/1807/6997), Nieh Hsu-tsung (5119/4872/1350), and Lin I (2651/0001), all of the Institute of Chemistry, Chinese Academy of Sciences (pp 57-67) [The paper was received for publication 20 July 1961; according to a footnote, many of its important aspects had been presented at the Czechoslovakian International Polymer Conference (September 1957), with a detailed abstract appearing in the Journal of Polymer Science, Vol 30, 1958, p 525. The author thanks Hsu Tuan-fu (1776/4551/1133) for his X-ray determinations.]

"The Absolute Configuration of  $\alpha$ -Sitosterol at C<sub>24</sub>," by Huang Wei-yuan (7806/4850/0997) and Hsu Chin-wen (1776/6930/2429), both of the Institute of Organic Chemistry, Chinese Academy of Sciences (pp 68-70) [The paper was received for publication 5 August 1960; according to a footnote, the research reported in the paper was discussed at a general conference called by the Scientific and Technological Committee of the Institute of Organic Chemistry in 1956. Preliminary results were reported at a work conference held by this institute in March 1957.]

"Several Remarks on the New International Table of Atomic Weights," by Liang Shu-ch'uan (2733/2885/2938), Institute of Chemistry, Chinese Academy of Sciences (pp 71-73) (FOR OFFICIAL USE ONLY)

Earth Sciences

"ON CONTRADICTIONS" APPLIED TO PROBLEM OF EXCESSIVELY SANDY FARMLAND --  
Peiping, Ti-li, No 2, Feb 61, pp 64-67, 56

/The following is a translation of an article, "The Use of 'On Contradictions' in the Resolution of Primary contradictions in Desert Control Programs for Farmlands in Sandy Areas," by Su Shih-jung (5685/0013/2837), Wu Yu-jen (0702/0645/0088), and Kuo Huan-ch'eng (6753/3562/2052), no affiliations given./

Desert control is an important element in the improvement of nature; it is a step toward the establishment of socialism and Communism; it is an important phase in the development of production and in the rational coordination of productive strength with soil irrigation; and it has great political and economic significance.

Some of the instructors and students of the Geography Department, Nanking University, have been working in sandy areas of Tsinghai Province, Tibet, and Northern Shensi Province for the past two years. We have drawn up a program for more rational utilization of the desert areas of the Tsaidam Basin, emphasizing implementation of desert control programs in several agricultural areas. Our first step was to apply Mao Tse-tung's (3029/3419/2639) thoughts, especially the principles set forth in "On Contradictions," to the problem of contradictions encountered in the process of improving sandy farmland. On the basis of our experiences, we can recommend this procedure to domestic geographers.

A. "On Contradictions" Provides the Key Ideas for Desert Control Programs in Sandy Farmland

A desert control program for sandy farmland is a process involving the recognition, analysis, and resolution of the contradictions between the concrete conditions and the building of socialism with improvement in the utilization of deserts. Chairman Mao's "On Contradictions" provides the key ideas for the recognition, analysis, and resolution of the contradictions in sandy farmland desert control programs.

The extensive sandy areas of China are generally arid and windblown, with vast amounts of earth and abundant resources but sparse population and basically weak economies. These areas do, however, show the rapid increases in production and population that are characteristic of socialist economies. From the point of view of the establishment of socialism, these characteristics have their drawbacks as well as their advantages. Therefore, contradictions often occur between the processes of creation and development of farmland in sandy areas, and between the establishment of socialism and improved utilization of deserts.

The most prominent contradictions of general significance are: the contradiction between the needs of developing production and windbreaks and sand holding; between expansion of the cropped area and retention of natural cover for sand fixing and wind breaking; the contradictions between economic development and insufficient water resources, and between the use of water by each sector of the economy and for desert control; the contradiction between the resolution of the problems of fuel, food, and fertilizer and the retention of natural cover to fix the sand and break the wind; and the contradiction between the requirements for improvement of the deserts and the labor shortage and basic economic weaknesses. There are contradictions both for the farmlands in sandy areas as a whole, and for the complete process of developing each farming area individually. Moreover, there are different contradictions in different farmlands in sandy areas; some contradictions are collective in nature, and some are individual.

For example, the farmlands of the prairie-like sandy areas in the Hai-nan Tibetan Autonomous Chou and in the dessicated sandy areas in the Eastern and Western parts of the Tsaidam Basin have different characteristics and different contradictions. Conditions, especially climatic conditions, are comparatively favorable in the Hai-nan Tibetan Autonomous Chou. The area has a long history of development, a fairly large population, and is the leading agricultural and animal husbandry area of Tsinghai Province. Because of these conditions, the most notable contradictions in this area are between the extensiveness of the cropped area and the need to preserve the natural cover to hold down the sand and break the wind. The arid western part of the Tsaidam Basin is rich in minerals but poor in water. The economy of this area is developing apace; therefore, the primary contradiction here is between industrial development, agricultural production, and urban construction on the one hand, and windbreaks, sand fixing, and water utilization on the other. The natural conditions in the dry eastern half of the Tsaidam basin are intermediate between those existing in the other two areas. Agriculture and animal husbandry are the principal sectors of the economy of this region. Therefore, the contradiction that exist between the needs of these sectors and the management of the natural cover, and between the use of water sources by productive sectors and for desert control are the crucial problems in this area.

It is therefore evident that, in planning desert control in farmlands, the individualities of the contradictions cannot be understood by concrete analysis of the farmland conditions alone.

Farmlands in the same sandy area, but in differing stages of development, are characterized by different contradictions. The reason for this is that:

"The basic contradiction in the process of development of a thing, and the quality of the process determined by this basic contradiction, will not disappear until the process is completed; but the condition, will not disappear until the process is completed; but the conditions of each stage in the long process of development of a thing often differ from those of another stage. This is because, although the nature of the basic contradiction in the development of a thing or in the quality of the process has not changed, yet at the various stages in the long process of development, the basic contradiction assumes an increasingly intensified form. Besides, among the numerous big and small contradictions determined or influenced by the basic contradiction, some become intensified, some are temporarily or partially solved or mitigated, and some emerge anew; consequently, the process reveals itself as consisting of different stages." (Selected Works of Mao Tse-tung, Vol 2)

The individual contradictions of farmlands in the same sandy areas, but in differing stages of development, are a case in point. For example, the most outstanding problem during the establishment of the Golmo farmlands in the Tsaidam Basin was the contradiction between increasing agricultural production and improving the saline soil. As this contradiction was gradually resolved by continued growth in production, the contradiction between the increase in land under cultivation and the preservation of natural cover became the most serious contradiction, since continued expansion of the area under cultivation would destroy the natural cover, inhibiting sand holding and wind breaking. At present, the main contradiction is that between the requirements for full, regular agricultural production and the dangers from sand and wind. As agriculture and other forms of economic activity develop, and as the planned industries are established in Golmo, the need for water will increase sharply. The contradiction, therefore, that will be most important in the future will be that between development and the insufficient water supply. If the individualities of each contradiction in the process of development of the farmlands are not carefully attended to, the existing contradictions cannot be dealt with in a satisfactory manner.

Each element of the contradictions present in the differing stages of development has its appropriate characteristic. For example, in the process of development of the farmland of Hai-nan Tibetan Autonomous Chou, the contradiction between the rational utilization of the soil and the need to preserve the natural cover to hold down the sand and serve as a windbreak was the primary contradiction. In the initial stage of creating the farmland, animal husbandry was the leading economic activity of the area. Therefore, the contradictions between pasturage and preservation of the natural cover was the most outstanding contradiction. As the farmland was created and agriculture leapt forward, this contradiction intensified

without changing in its nature. At this time, the contradiction between land reclamation for an expanded cultivated area and the preservation of the natural cover for sandholding and wind breaking became acute. The contradiction between land utilization by agriculture or by animal husbandry became manifest, as did the contradiction between rational apportionment of land to farmlands and to people's communes. It is evident from the above that if we do not study the characteristics of the various phases of the contradictions, we will be unable to resolve these contradictions or to understand their interrelationship.

The natural conditions that must be taken into account in the improvement of the deserts of China are complex and appear in many varieties. We must therefore rely upon "On Contradictions" as a guide in looking at these deserts: "There are things in common in certain areas, in others there are individualities. On the other hand, in some of the areas the individualities can be changed into similarities." This is the case in the sandy areas of T'inghai Province. Although it is similar to other sandy areas, its contradictions are, to some extent, shared by other non-sandy areas of China. The contradictions mentioned above are a case in point. From the viewpoint of other sandy areas of China, however, this area shows some characteristic individualities; the coldness of its deserts distinguish them from other deserts. As a result, one of its peculiar contradictions is that between a massive development of agricultural production and the effects of its low temperatures and short growing season. The principle of "On Contradictions" must be understood: a national desert control drive can only come through the actual work of dealing with the soil. Only then can programs be implemented that are in accordance with the characteristics of the area.

In the face of such tangled and complex contradictions, we must separate the primary contradictions from those of secondary importance. As we know, the contradiction between production and water shortage in the process of developing the farmland is generally a primary contradiction. This is because its existence and development determines or influences the existence and development of other contradictions. The other contradictions mentioned above are of a similar nature. On the one hand, the existence of the contradiction between the development of production and the shortage of water determines the existence of other contradictions, e.g., the contradiction between the allocation of water between desert control and the various productive sectors stems from this; the limitation of land that can be brought under cultivation or used for rearing animals stems from the contradiction between the expansion of cultivated areas and the preservation of natural cover, etc., etc. On the other hand, the existence of one primary contradiction is influenced by the existence of others, e. g., the shortage of water

influences the rate at which agricultural production can be expanded, but, on the other hand, the shortage of water may directly spur the development of agriculture and may provide the impetus for the application of human and natural resources and capital to the establishment of other productive sectors in order to solve the problem of shortage of water. This would hasten the growth of the economy and solve or ameliorate other contradictions. Therefore, in the planning of desert control "...full efforts must be made to find the primary contradiction. Once this contradiction is dealt with, the other problems will become resolvable."

Of the two elements in the contradiction between the development of production and the shortage of water, the development of production is the most important. This contradiction, therefore, does not appear until production is first developed. The development of this element of the contradiction thus determines the appearance and existence of the contradiction. The intensity of this contradiction is determined by the level of productive development. The higher the level of productive development, the more water is required, and the more acute the contradiction, but the amelioration of the contradiction will be hastened. The resolution of the contradiction is, to a very great degree, dependent upon the situation of productive development.

The rational use of water and the enlargement of the sources of water, for example, require the establishment of hydraulic engineering projects. These require the prior development of the productive level so as to have the economic and technological ability to implement these projects. These conditions that we have set forth are, of course, not invariable. Under certain conditions, the more important and the less important elements of the contradiction are reversible. When resolving concrete contradictions, therefore, both the more and less important elements of the contradiction must be considered. If, for example, the contradiction is between productive development and water shortage, reduction in the use of water and rational use of the water must be considered at the same time that an increase in the source of the water is considered.

Another factor is that the elements of the contradiction may be antithetical but reconcilable. The reconciliation is conditional, temporary, and relative; the conflict of the antitheses is unconditional and absolute. It was with this in mind that we dealt with the contradictions encountered in our planning. The contradiction between increasing the area under cultivation and the preservation of the natural cover, was an example of this paradox.

Finally, it ought to be pointed out that we analyzed the relationships between each of the contradictions in analyzing and resolving the contradictions that we encountered in our desert control plans for farmlands.

The improvement of sandy areas, the utilization of deserts, avoiding injury and reaping advantages, sandy areas and nonsandy areas, internal and external conditions, temporary and long-range conditions, and advantageous and disadvantageous conditions were all considered in conjunction with one another. The causes of the above factors were considered; and the subjective capabilities of the people were put to use. The development and transformation of objective matters were also analyzed, taking into full account the impact on the conditions of the sandy area that will be made by the rapid growth of the national economy. This avoids the isolated, quietistic, and partial ways of viewing the contradictions in the sandy areas.

In carrying out plans for farmland desert control in sandy areas, we must, therefore, set forth the characteristic natural conditions and socioeconomic development of the area and then fully recognize the contradictions that are shared and those that are individual. Solutions can then be proposed in accordance with the area under consideration. The antithetical and reconcilable elements of the contradictions must also be analysed in order that a concrete program for the resolution of these contradictions can be planned.

B. Suggestions for the Resolution of Several of the Primary Contradictions Found in Plans for Farmlands in Sandy Areas

1. Resolution of the Contradiction Between Expansion of Cultivated Area and Preservation of Natural Cover for Sand Holding and Wind Breaking

The resolution of the contradiction between the expansion of the area under cultivation and the preservation of natural cover for sand holding and wind breaking is the most important contradiction present in plans for farmlands in sandy areas. The concrete manifestations of this contradiction, according to a preliminary analysis, are: a strong contradiction between the reclamation of land in order to create fields and the recurrent drifting of sand caused by the destruction of the natural cover; the contradiction between insuring consistent bumper harvests and the dangers from windblown sand; the problem of rational coordination between agriculture, forestry, and animal husbandry; etc. In sandy areas, the most rapidly growing industries are mining, communications, and transportation. Great efforts are being made in grain production and other agricultural pursuits in order to achieve total or partial self-sufficiency in food. Of these efforts, the one taking place in grain production is of greatest significance. The level of grain production is more important than that of agricultural production in general, as it is most beneficial to the growth process in sandy areas. It is clear, then, that reclamation of land for fields, expansion of the area under cultivation, and increasing yield per unit area are the necessary prerequisites to major efforts in agricultural and

food production under the objective natural conditions and the socioeconomic situation of these areas. It is for these reasons that, in order to resolve the contradictions in a rational manner, we must base our actions on these thoughts: "Agriculture is the foundation of the national economy," "Grain is the basis of this foundation." Prior to satisfactory expansion of the area under cultivation, it is clear that large-scale efforts in creating fields by land reclamation, and in the rational employment of natural cover must be made, planned according to the area and rationally implemented.

The contradiction between expansion of the area under cultivation and the preservation of natural cover for sand holding and wind breaking has an antithetical aspect, but it also has a reconcilable aspect. The reconciliation of the antithesis of this kind of contradiction is a powerful spur to the establishment and development of farmlands in sandy areas. For example, as the Golmo farmlands in the Tsaidam Basin were established, the protective effect of the natural cover destroyed by the land reclamation was weakened, increasing the danger from drifting sand. This is the antithetical aspect of the contradiction between the expansion of the area under cultivation and the preservation of the natural cover for wind breaking and sand holding purposes. From another viewpoint, however, the irrigation and other human economic activities improved the climate and increased the humidity and the soil moisture. This not only reduces the effect of the sands but, at the same time, improves the soil. This encourages the spread of the natural vegetation, increases the plant varieties in the area, and speeds the replacement of the natural cover. The positive effect that development of one phase of production will have on natural conditions under certain circumstances, therefore, is effective reduction in the danger from windblown sand. This demonstrates the beneficial effects that can be produced by man-made improvements (this phenomena can be observed in farmlands in all sandy areas). In addition, a good deal of fuel can be gathered during the land reclamation projects; in this way, the deleterious effects of foraging for fuel can be reduced. These are the concrete manifestations of the reconcilability of the contradiction between the expansion of the area under cultivation and the preservation of natural cover for sand holding and wind breaking. The view that only antithetical and unreconcilable elements exist is partial and erroneous.

The creation of fields by land reclamation and the expansion of the area under cultivation are the most important elements in this contradiction. During the creation of fields by land reclamation, clearing the land and planting trees should be carried on at the same time. This requires planning in order to retain a rational shelter belt. The urge to blindly follow the "using a horse to level a river" policy must be suppressed and areas to be reclaimed must be selected

rationally, in accordance with the natural conditions of the area (for instance, do little or no clearing in places exposed to the wind, except for small shrubs and smoothing out the small dunes, retain the larger shrubs and sand dunes, etc.) and must be coordinated with hydraulic engineering projects. Adopt practices that prove effective in holding the sand resisting the wind. Combine comprehensive development of agriculture, forestry, and animal husbandry with the employment of agricultural technology in order to effectively reconcile the contradiction between the expansion of the area under cultivation and the preservation of natural cover for sand holding and wind breaking. The requirements of expanded cultivated areas can then be satisfied and it will be possible to employ the natural cover rationally, so as to hold the sand and resist the wind, organically combining the improvement and utilization of the desert.

Thinking that improvement of the natural conditions is unfeasible, that the subjective efforts of men are to little avail, and that the resolution of the contradictions involves treating the preservation of the natural cover as the most important element is tantamount to disregarding the need for national economic growth. This shows a negative reliance upon the physical world and a sophomoric way of thinking; for these reasons it is erroneous. This same type of thinking characterizes the point of view that proposes, in the process of reclamation of deserts that the expansion of the area under cultivation by creating fields by clearing the land must be subordinated to the needs of forestry alone.

Although the preservation of the natural cover is the less important element of this contradiction, it remains an effective and economical measure in desert control. This can be demonstrated as follows: clearly, in creating fields by clearing the land and preserving the natural cover, selective cutting, replanting, and expanding the area of natural cover, along with planned foraging, holding the sand with grass by controlling grazing, using better grasses, and creating artificial grazing areas, are important practices in the processes of creating fields by clearing the land, maintaining regular bumper harvests, and effectively holding the sand and resisting the wind. So, in solving the contradiction, the natural cover must be employed rationally.

Keep the following points in mind. The relative importance of the two elements in the contradiction between the expansion of the area under cultivation and the preservation of natural cover to hold the soil and act as a windbreak may be reversed under certain conditions. In the Golmo farmlands of the Tsaidam Basin, for example, although the expansion of the area under cultivation was the more important element

while this expansion was going on, once it had been basically completed, the more important elements became the preserving of the natural cover, increasing the cover's thickness, and strengthening its sand holding and wind breaking effectiveness, so as to insure regular bumper harvests. There must, then, be an analysis of the concrete conditions in the process of must, then, be an analysis of the concrete conditions in the process of resolving this contradiction; attention must be paid to the possible transformation of the contradiction, resisting both quietism as regards the objective form of nature and sophomoric thought.

## 2. Resolution of the Contradictions Between Productive Development and Water Shortage and Between the Use of Water by the Productive Sectors and for Desert Control

The resolution of the contradictions between productive development and water shortage and between the use of water by the productive sectors and for desert control, in practice, reduce themselves the problems of lack of water and the rational distribution of the available water. These are also primary problems in the developing of farmlands in sandy areas.

The problems of lack of water and the rational distribution of the available water can be solved by the resolution of the contradiction between the required amount of water and the presently available supply; the contradiction between the seasonal use of water and the supply; the contradiction between the construction of hydraulic engineering projects and productive development; the contradiction between using water in production and using it for desert control the contradiction between the lack of moisture and the evaporation and seepage of water; etc.

In order to resolve the above contradictions, the contradiction between the required amount of water and the available supply must first be solved; rational resolution of this contradiction will make it possible to resolve the other contradictions. In creating farmland around Ma-hai, in the Tsaidam Basin, for example, this contradiction was the first one dealt with in the attempt to resolve the contradictions between productive development and water shortage, and between the use of water by the productive sectors and for desert control. Hydraulic engineering projects were set up to expand the irrigated areas, increase water power, and, at the same time, to resolve the contradictions between lack of water and productive development and between seasonal droughts and seasonal uses of water. Evaporation and seepage were effectively avoided; waste of water was either reduced or eliminated. The contradictions were resolved by these concrete measures and the agricultural fields were given a further impetus to develop. This shows the necessity for attending to the resolution of the elements of other contradictions when resolving the primary contradiction.

In resolving the contradiction between water requirements and the lack of water, it is most important to attend to the water requirements. Even though the climate of sandy areas is comparatively arid and the supplies of water are not plentiful, there are many different sources of water (e.g., surface water, subsurface water, artesian water, water from ice and snow, condensed water, and so forth) and a certain quantity of water is available. Just because the present sources of water supply for farmland and desert control are insufficient, there is no justification for assuming that there are not hidden resources of water in the sandy area that can still be tapped. There are many reasons why this is so. Some areas have not brought their hydraulic engineering projects up to standard; some areas have not yet fully determined their hydraulic resources; in some areas the necessity of keeping the dikes in repair has not been fully appreciated, resulting in wastage of water through seepage, etc. It is for these reasons that intensified effort is needed with respect to water supply.

It is evident that it is possible to expand the sources of water supply so as to satisfy the requirements for water in sandy areas. It must be pointed out, however, that the amount of water available in sandy areas is not abundant and cannot meet the needs of an indefinitely expanding level of productive development. Since the contradiction between the shortage of water and the water requirements will become increasingly acute, we need to emphasize avoidance of wasteful practices. Resolution of the contradiction between the shortage of water and the water required must, therefore, be carried out on the twin fronts of opening up new sources of water and economy in its use. It is one-sided and erroneous to disregard either of these elements.

An increase in the water supply is the basis of a resolution of this contradiction. In accordance with the conditions of the sandy area, increasing the water supply fulfils the spirit of "use what water you have, use how much water there is." Fully employ the human resources at your disposal, establish hydraulic engineering projects and delve to the bottom of all sources of water. The following principle must then be put into effect: full and rational employment of the surface water and accurate estimation of the extent of subsurface water; effective utilization of present sources of water and opening of new sources; increasing the efficiency of use of the water sources and reduction of waste; emphasis on the usage of primary sources of water and complete exposition of the interrelationship between the various sources; and complete exploitation of all sources of water within the area and bringing in water from outside the area where practicable. These are the general principals of expanding the sources of water. In other areas, where natural conditions and socioeconomic characteristics differ, different concrete solutions to the problem of water sources must be found.

The resolution of the contradictions in water utilization involves the economical use of water and its rational distribution. Distribution of water must be carried out so as to insure that the water will be used productively. The distribution of water among the various productive sectors and for use in desert control must ensure that the basic needs of the key sector, agriculture, are met. In using the water, the following principles must be followed: economical use of water and rational coordination of water distribution; establishment and improvement of standards of irrigation; development of types of production and practices of desert control that use less water, and the use of new techniques to reduce the waste of water; in desert control, the use airplane sowing in the rainy season to sow plants that either supply water or require little water and that will hold the sand, or the use of other practices that require little water; in production, selection of varieties of crops that are strong and drought resistant; coordination of individual and general water utilization practices to insure rational use; rational assignment and delimitation of areas with seasonal and year-round water requirements, and mutual coordination of the delimitation of their borders. If the above principles are adhered to, it will help relieve the shortage of water and will effectively promote the productive development of the farmlands and desert control in sandy areas.

### 3. Resolution of the Contradiction Between Fuel, Food, and Fertilizer and the Retention of Natural Cover for Sand Holding and Wind Breaking

The contradiction between fuel and retention of the natural cover is not only relevant to the improvement and utilization of deserts, but it is also a problem that must be solved to stimulate rapid economic growth of the sandy area. The importance of the problem is demonstrated by the following contradictions: between supply and demand for fuel in the sandy area; between random foraging in the natural cover and sand holding and wind breaking; between fuel production and field rotation; between the types of fuel products and needs; and between fuel consumption by the productive sectors and personal fuel consumption.

The resolution of these contradictions requires that the primary element of the contradiction, the relationship of fuel supply and demand, i. e., supply falling short of demand, be recognized. Satisfying the fuel requirements for economic growth is the main factor in the fuel problem. So although the preservation of the natural cover is a key element in the treating of sand, a rational solution of the problem must be based on the fuel needed for economic growth.

At the same time, the interrelationship of the elements of the contradiction must be noted and the tendency of the contradiction to reverse itself be taken into account. The contradiction can be attacked on two fronts: expanding fuel sources and increasing the supply of fuel on

the one hand, and reducing fuel consumption on the other. There are plentiful and varied resources in sandy areas; mineral fuels are the most important. There are unlimited possibilities for complete solution of the fuel problem once the fuel industry has been established, fuel production raised, transportation capabilities expanded, and a basis for the collection of plant fuels set up. Even with the rapid development of the economy of the sandy area, however, fuel resources and production can never completely satisfy the growth needs of the national economy as a whole for fuel. We must, therefore, make rational use of the fuel resources and, simultaneously with our expansion of the fuel resources, we must carry out a technological revolution in order to improve our fuel-using equipment and reduce fuel consumption. This is the way to solve the fuel problem.

Natural plant fuel must be cut rationally in addition to expanding the sources of mineral fuels. The coordination of sand holding and wind protection with replanting of fuel forests, according to the area's nature, is another important aspect in the solution of the fuel problem in sandy areas. There is some disagreement over ways of dealing with this aspect. Some maintain that we ought not exploit the natural cover as this will lead to inundation by sand. Others maintain that, since the natural conditions in sandy areas are generally unfavorable, there must be constant use of fuel forests, arguing that "future water does not solve present drought." These two points of view are mutually exclusive because they are not based on the dialectical method and so only take one aspect of things into account. Although foraging can reduce the wind breaking and sand holding capabilities of the natural cover, leading to inundation by sand, this is only one aspect of the problem. The other aspect is that the foraging can be planned rationally, even to the point of stimulating regrowth of the natural cover and actually aiding the wind breaking and sand holding. If, at the same time that the foraging is under way, active reforestation is undertaken, the contradiction between fuel and protection of the natural cover for wind breaking and sand holding can be resolved by reconciling the antitheses. Those who object to the utilization of the fuel forests in sandy areas display a sophomoric point of view. They see only material factors, and not human ones; they see only the disadvantages, not the advantages; most important, they do not see the ability of men, working under the socialist system, to improve upon nature; they see only immediate profit and do not take the long range view. It is evident that, if the present vegetation is not improved, there will be no fuel in the future. In short, the rational coordination of wind breaking and sand holding with setting up a basic source of natural vegetative fuels is an effective way of solving the fuel problem.

A full solution of the fuel problem must still depend upon further advances in technology. Three concrete methods should be employed to expand fuel resources and reduce consumption: (1) full promotion of technology according to requirements and possibilities; (2) promotion, where conditions permit, of experiments on the use of sunlight or wind as power sources; (3) improvement of fuel-using equipment to increase its efficiency and reduce waste.

In addition to the above, emphasize the use of mineral fuels and use the various kinds of fuel rationally. Adjust and coordinate the areas of fuel production and consumption. Weigh carefully the fuel requirements of the various productive sectors. Increase the capabilities of transportation and encourage the use of coal. These and other practices will bring about the solution of the fuel problem.

The shortage of food and fertilizer are two important elements in the development of agriculture and animal husbandry in sandy areas. To solve these two problems, full subjective human resources must be applied in accordance with objective laws, making possible full utilization of the natural cover, grazing lands, and crop lands. Certain types and certain herds should be grazed at certain times. The implementation of these practices will mean full use of available food resources, establishment of a basis for future food resources, and will hasten regrowth of the natural cover. Acting in accordance with the internal relationships and regularities of production will encourage the coordination of agriculture and animal husbandry, rational field rotation, appropriate development of green fertilizers and food crops, and large-scale development of the swine-raising industry. Gradual exploitation of the foliage of the natural cover, through composting, to provide an additional source of fertilizer, should be undertaken. Finally, a mass program to develop subsidiary industries using available technology and capital must be undertaken.

### C. Conclusion

Since all contradictions are similar, "On Contradictions" is the key to the resolution of the contradictions involved in agricultural planning of sandy areas as well as other contradictions. It is a guideline running through the planning process like a red thread through a fabric. "On Contradictions" is the key to all contradictions in addition to the ones we have described above.

Obviously, Mao Tse-tung's other thoughts, in addition to those in "On Contradictions", are sources of inspiration to use in the desert control planning of farmlands.

We therefore fully realize that for the geographer to completely fulfill his productive responsibilities and solve the practical problems of production, he must be guided by political thought, improve himself, and know and use Mao Tse-tung's thoughts. As in any other science, Mao's thoughts are the guidon that lead the way down the only road by which geography can advance!

TECHNIQUES SUGGESTED FOR USE IN COMPILING SUBMERGED FIELD DISTRIBUTION  
MAPS -- Peiping, Ti-li, No 3, Mar 62, pp 114-117

[The following is a summary of an article, "Compilation of Maps Showing the Distribution of Submerged Fields in the South," by Fu Su-hsing (0265/5126/1840), no affiliation given.]

Maps showing the distribution of submerged fields in the provinces of South China were compiled on the basis of suggestions by the Institute of Geography, Chinese Academy of Sciences, and utilizing maps prepared by the Class of 1956 and the Class of 1957, Geographical Map Specialty, Ti-li Chih-t'u Chuan-yeh; 0966/3810/0455/0956/0278/2814), Nanking University. The term "Submerged fields" refers to paddy fields. The maps were basically drawn to a 1:1,000,000 scale and attempted to show the true distribution of submerged fields, topography, water systems, soils, population distribution, communications networks, and types of economic activity in the areas covered. Large-scale topographic and agricultural soil maps were used as basic sources.

The maps were compiled keeping in mind their purpose, that is, the provision of data for agricultural mechanization, hydraulic engineering, and long-range planning. On the basis of the experiences encountered in the work on the above maps, it is thought that the following suggestions ought to be borne in mind by those doing this sort of work.

The extent and area of the submerged fields, both before and after the liberation, should be presented, as should the distribution of irrigated and nonirrigated crops. Data on hydraulic engineering projects and soil utilization should be included. If space permits, soil type areas should be delineated, as should the distribution of agricultural fields and long-range planning for soil improvement.

Since agricultural and topographical maps are intimately related, contours should be used in the compilation of the base maps. Basis sources should include pedological or soil utilization maps on scales between 1:200,000 and 1:500,000. Before the original map is prepared, the geographical character and individualities of the area concerned ought to be investigated.

In general, three methods are used to represent the distribution of the submerged fields: by extent, by symbols, and by selective representation. The selection of one of these methods should be made on the basis of the type of terrain involved, differing in the major paddy rice-producing areas of south China: the Yantse River delta, the Kiangsu-Hunan Plain, and isolated basins.

Two of the more troublesome problems encountered are representing populations in the process of change and balancing the claims of comprehensive and selective modes of representation. (FOR OFFICIAL USE ONLY)

EDITORIAL GUIDELINES FOR MAP COMPILATIONS PRESENTED -- Peiping, Ti-li, No 3, Mar 62, pp 110-113

[The following is a summary of an article, "The Layout of Specialized Maps in a Comprehensive Map Collection," by Chang Li-kuo (1728/0500/2654), no affiliation given.]

To improve the usefulness of comprehensive map collections, the relationship between individual maps and between groups of maps must be made evident. This can be accomplished by emphasizing two points: the design of the specialized maps must be standardized; there must be a suitable relationship between the specialized maps.

These specialized maps fall into nine categories: typical maps (e.g., geological, geomorphological, pedological, and vegetation maps), equivalent line maps (e.g., climatographic and topographical maps), area-delineation maps, regional statistical maps, regional economic maps, vector maps, distributional maps, composite maps, and charts.

In editing the maps, the following order of precedence should be adhered to: (1) combining the base maps, (2) considering the interrelationships of the data, (3) combining the regional and general maps in a comprehensive collection, (4) simultaneously editing closely related maps, (5) delegation of tasks according to available manpower, and (6) editorial coordination of legends and scales. (FOR OFFICIAL USE ONLY)

TABLE OF CONTENTS OF GEOGRAPHY PERIODICAL -- Peiping, Ti-li, No 3, Mar 62,

"Problems in Delineating Comprehensive Natural Areas in China," by Lin Ch'ao (2651/6389) [no affiliation given] (pp 81-89)

"Causes of the Genesis and Development of Swamps in the Northeast," by Yang Ping-keng (2799/4426/6342) and Chin Shu-jen (6855/2885/0088) [no affiliations given] (pp 90-94)

"[Solar] Radiation in Peiping," by Tso Ta-k'ang (1563/1129/1660) and Kung Jan (1712/0373) [no affiliations given] (pp 95-98)

"A Discussion of the Dynamic Geomorphology of Shores," by Wang Ying (3769/4481) [no affiliation given] (pp 99-101)

"Evaluation of Climatic Conditions From the Standpoint of Agricultural Economics," by Ch'i Shao-k'un (7871/4801/2492) and Liao Hsi-hsin (2733/0823/2450) [no affiliations given] (pp 102-104)

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

"Prevention of Wind Damage in the Hun-ch'un Basin," by Hao Ling-yun (6787/0407/0061) [no affiliation given] (pp 106-109)

"The Layout of Specialized Maps in a Comprehensive Map Collection," by Chang Li-kuo (1728/050/2654) [no affiliation given] (pp 110-113) [See above item for a summary of the this article.]

"Compilation of Maps Showing the Distribution of Submerged Fields in the South," by Fu Su-hsing (0265/5126/1840) [no affiliation given] (pp 114-117) [A summary of this article appears above.]

"Some Problems in Teaching Secondary School Geography," by Chang Tzu-chen (1728/1311/2823) and Ts'ao Ch'i (2580/3823) [no affiliations given] (pp 118-120, 94) (FOR OFFICIAL USE ONLY)

TABLE OF CONTENTS OF METEOROLOGY JOURNAL -- Peiping, Ch'i-hsiang Hsueh-pao, Vol 31, No 1, Feb 60

"On Compiling Predictions of the Time for Cotton Sowing," by the Agricultural Meteorology Research Laboratory, Central Bureau of Meteorology (pp 1-9)

"An Initial Inquiry Into, and a Climatic Analysis of, North China Winter Wheat Frost Damage Indicators," by the Agricultural Meteorology Research Laboratory, Central Bureau of Meteorology, and the Agricultural Meteorology Research Laboratory, Chinese Academy of Agricultural Sciences (pp 10-35)

"On Compiling Predictions of the Time for Winter Wheat Harvesting," by Fu Yung-kang (2591/3057/4854), Agricultural Meteorology Research Laboratory, Central Bureau of Meteorology (pp 36-40)

"The Effects of the Close Planting of Paddy Rice on Temperature, Moisture, and Sunlight," by Li Ming-ta (0536/2494/6671) and Chu Shu-hsia (2612/2562/7209), both of the Agricultural Meteorology Research Laboratory, Chinese Academy of Agricultural Sciences; P'ang Yen-ch'i (1690/3601/3823) and Yuan Hu-sheng (5913/337/3932), both of the Agricultural Meteorology Research Laboratory, Central Bureau of Meteorology; and Yang T'i-ing (7122/7555/0393) and Ts'ai Hsien-sheng (5591/7359/5110), both of the Agricultural Meteorology Research Laboratory, Kiangsu Branch, Chinese Academy of Agricultural Sciences (pp 41-50)

"An Initial Inquiry Into the Critical Period of Rainfall for Winter Wheat," by the Agricultural Climate Team, Agricultural Meteorology Research Laboratory, Central Bureau of Meteorology, and the Agricultural Climate Team, Hupeh Provincial Bureau of Meteorology (pp 51-59)

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

"The 24 Solar Terms and Agricultural Production," by the Agricultural Climate Team, Agricultural Meteorology Research Laboratory, Chinese Academy of Agricultural Sciences (pp 60-74)

"Studies of Aeolian Sands I: Transfer of Sand in the Surface Layer," by Liu Chen-hsing (0491/2812.5281), Institute of Geophysics, Chinese Academy of Sciences (pp 75-83) [The author thanks Prof Chao Chiu-chang (6392/0046/4545) for his encouragement and direction.]

"Studies of Aeolian Sands II: An Initial Study of the Regularity of Sand Dune Movements Under the Action of Wind," by Liu Chen-hsing (0491/2182/5281), Institute of Geophysics, Chinese Academy of Sciences (pp 84-91) [The author thanks Prof Chao Chiu-chang (6392/0046/4545) for his direction; Ch'ien T'ai-t'ao (6929/3141/3447), Institute of Forestry and Soils, Chinese Academy of Sciences; and Wang Chin-hsi (3769/6855/3886), Sand-Fixing Section, Comprehensive Research Team for Tsinghai, Kansu, Ningsia, and Mongolia, Chinese Academy of Sciences, for their help with part of the statistical work.]

PARTY, GOVERNMENT CADRES STUDY AT PEIPING GEOLOGY COLLEGE -- Peiping, Jen-min Jih-pao, 1 Sep 62, p 2

Since 1955, party and government cadres have been studying mathematics, physics, chemistry, and specialized geology courses at Peiping Geology College on a spare-time basis.

Among the specialized subjects studied are geology, topographical surveying, structural geology, geological cartography, historical geology, paleontology, petrology, mineralogy, crystallography, metallogeny, and mineral prospecting. Among the cadres that have participated are Wang Liang (3769/5328), general party secretary, Geophysical Prospecting Department, and Ku Jung (7357/2837), general party secretary, Survey Department.

MATHEMATICAL AND PHYSICAL SCIENCES

COMPLETENESS OF QUANTUM ENSEMBEL DESCRIPTION QUESTIONED -- Peiping, Wu-li Hsueh-pao, Vol 18, No 3, Mar 62, pp 165-166

[The following is the complete text of an article, "The Importance of Lifetime Correlation Experiments," by P'eng Huan-wu (1756/2719/2976), no affiliation given.]

In recent years, the statistical interpretation of quantum theory has again been questioned by some physicists. The work directed by Janossy in Hungary is among the very scarce experimental work done.

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

Because quantum theory aims at natural laws for microscopic particles, statistical concepts (called quantum ensembles) are naturally involved. The question is whether or not the quantum ensemble affords, in principle, a complete description of the microscopic particles. It may represent only the top structure of a more fundamental and complete description of the microscopic particles.

More experimental work will help to decide this question. Thanks to modern developments in experimental techniques, experiments on the possible correlation between the actual lifetimes of two successive decays are possible and would be worthwhile.

Let  $t_1$  and  $t_2$  denote, for a certain individual event, the actual lifetime of the parent decay  $A \rightarrow B$  and that of the daughter decay  $B \rightarrow C$ , respectively. After measuring a large number of individual events, we could obtain, by statistical calculation, the average lifetime  $\langle t_1 \rangle$  for the parent decay, the average lifetime  $\langle t_2 \rangle$  for the daughter decay, and the correlation coefficient  $C$ .

$$C = \frac{\langle (t_1 - \langle t_1 \rangle)(t_2 - \langle t_2 \rangle) \rangle}{\langle t_1 \rangle \langle t_2 \rangle}$$

With a large enough number of events available, statistical error could be calculated, permitting a definite answer to the question of existence or nonexistence of correlation. Of course, as of now, quantum theory predicts that no correlation between the successive lifetimes should exist. This definite prediction can be verified or disproved by the above experiment, which also yields a definite result. If, indeed, lifetime correlation exists and, therefore, the present-day quantum ensemble affords an incomplete description of microscopic particles, then its experimental discovery may prove to be very important for further theoretical development.

It is unnecessary to mention the very many cascade nuclear transitions of  $\beta \rightarrow \beta$ ,  $\beta \rightarrow \gamma$ , or  $\gamma \rightarrow \gamma$  types that may be used for the above purpose. As regards the cascade decay of elementary particles, we may consider particularly the cases of  $K^+ \rightarrow \pi^+ \mu^+$  and  $\pi^+ \rightarrow \mu^+ e^+$ . Experimental results for these decays might be more reliable and the theoretical reasoning less ambiguous than for other decays. (FOR OFFICIAL USE ONLY)

PROBLEM OF RECTANGULAR AND TROUGH LINES WITH INNER CIRCULAR CONDUCTORS SOLVED -- Peiping, Wu-li Hsueh-pao, Vol 18, No 1, Jan 62, pp 1-10

[The following is an abstract of an article, "The Working Characteristics of Rectangular and Trough Lines With Inner Circular Cylindrical Conductors," by Lin Wei-kan (2651/3634/1626), no affiliation given.]

By means of elliptical functions, a rectangular line with inner central conductor of circular cylindrical shape is transformed into a coaxial line with circular outer conductor and nearly circular inner conductor. Then by employing a finite number of terms of circular cylindrical harmonics, the boundary conditions at the outer conductor and at a finite number of points at the inner conductor can be made to fit. Thus, the problem of the rectangular line with inner central circular conductor is solved.

Similarly, by means of trigonometric functions, the trough line with central inner conductor can be handled. It is transformed into a wire of nearly circular cross section parallel to, and in front of, a grounded plane. Then by means of bipolar coordinate transformation, the problem of this trough line can be solved by using a finite number of rectangular harmonics. When the distance between the axis of the inner conductor and the bottom of the trough tends to infinity, the results obtained in this paper become those of the well-known slab line. (CONFIDENTIAL)

THEORY OF HEAT TRANSPORT PROCESSES DEVELOPED -- Peiping, Wu-li Hsueh-pao, Vol 18, No 6, Jun 62, pp 305-310

[The following is an English abstract which appeared at the end of an article, "A Dynamical Theory of the Heat Transport Process," by Ch'en Shih-kang (7115/1709/0474), no affiliation given.]

In this article, a dynamic theory of the heat transport process is developed. The concept of temperature difference between subsystems is introduced through the temperatures when they are disconnected and each of them is in equilibrium; we then treat the interaction between two subsystems as a perturbation. A rigorous expression of the coefficient of heat conductivity is obtained. For a large and uniform system, it reduces to Kubo's formula. (FOR OFFICIAL USE ONLY)

ABSORPTION OF ULTRASONIC WAVES IN ETHYL AND METHYL ACETATES STUDIED --  
Peiping, Wu-li Hsueh-pao, Vol 18, No 6, Jun 62, pp 298-304

[The following is an English abstract which appeared at the end of an article, "Absorption of Ultrasonic Waves in Ethyl and Methyl Acetates," by Wei Jung-chueh (7614/2837/3635) and Chang Shu-i (1728/3219/0308), both of the Physics Department, Nanking University. According to the text, Dr I. G. Mikhailov, of the Soviet Union, offered valuable suggestions and concrete assistance during 1959, while lecturing at the Physics Department, Nanking University.]

The much discussed and controversial problem of ultrasonic absorption in ethyl and methyl acetates was further investigated experimentally by the method of optical diffraction in progressive ultrasonic waves. In designing the equipment and throughout the measurements, special care was taken with the plane progressive nature of the ultrasonic field in the liquid trough; the elimination of stray light effect so that the receiver (a photomultiplier with preamplifier and a frequency analyzer connected in series) could respond with precision to the relative light intensities of the first diffracted maxima at different stations along the ultrasonic beam; etc. Automatic recordings of sound absorption coefficients were made possible by synchronization of the sound level recorder with the motion of the liquid trough. Several standard liquids were tested; the absorption coefficients thus obtained agreed well with commonly accepted values.

For both acetates, measurements were made in the frequency range of 3-30 Mc at 20 degrees centigrade.

For ethyl acetate, the results showed that within the experimental error (which was estimated to be about 5 percent), the observed absorption curve fits well with the theoretical curve predicted by the phenomenological relaxation theory; the frequency of relaxation occurs at approximately 12 Mc. Repeated measurements also showed the lack of dependence of impurities on the relaxation frequency.

The relaxation frequency for methyl acetate was found to be about 7 Mc. This once more confirms the theory and thus supports the findings of those who argued that a lower relaxation frequency found by some other investigators was spurious.

For the relaxational mechanism, the authors agree that it is due to rotational isomerism, as first proposed by Karpovich. (FOR OFFICIAL USE ONLY)

TABLE OF CONTENTS OF PHYSICS JOURNAL -- Peiping, Wu-li Hsueh-pao, Vol 18,  
No 1, Jan 62

"The Working Characteristics of Rectangular and Trough Lines With Inner Circular Cylindrical Conductors," by Lin Wei-kan (2651/3634/1626) [no affiliation given] (pp 1-10) [According to a note, the paper was received for publication in August 1961.]

"The Theory of Heat Conduction in the Presence of Radiation," by Wang Chu-ch'i (3769/4554/3305) [no affiliation given] (pp 11-26) [According to a note, the paper was received for publication in September 1961.]

"A Theory of Coupled Wave Guides," by Huang Hung-chia (7806/1347/0857) [no affiliation given] (pp 27-55) [According to notes, the paper was received in September 1961 and appears in Chung-kuo K'o-hsueh (Scientia Sinica), Vol 1, 1962. The author thanks Prof Ma Ta-yu (7456/1129/3731) and Prof Huang Wu-han (7806/2976/3352) for their opinions, and Prof Lu Pao-wei (0712/0202/4850) for discussing the paper with him.]

"Notes on Discontinuity Problems in Coupled Wave Theory," by Huang Hung-chia (7806/1347/0857) [no affiliation given] (pp 56-62) [According to notes, the paper was received in September 1961 and appears in Chung-kuo K'o-hsueh, Vol 1, 1962.] (CONFIDENTIAL)

TABLE OF CONTENTS OF MECHANICS JOURNAL -- Peiping, Li-hsueh Hsueh-pao,  
Vol 5, No 1, Feb 62

[According to footnotes, the first article in this issue is the draft of a speech made by the author to the Institute of Mechanics, Chinese Academy of Sciences, during his visit to China in 1959; all other articles were received for publication between September 1959 and June 1961.]

"Recent Achievements in Nonlinear Mechanics," by Yu. A. Mitropol'skiy Institute of Mathematics, Academy of Sciences Ukrainian SSR (pp 1-7)

"A Modified Feodosev Theory of the Bourdon Tube," by Lo Tsu-tao (5012/4371/6670), Shanghai Chiao-t'ung University, and Yu Ching-shun (3945/2417/5293), Shanghai Institute of Mechanics (pp 8-17)

"Redistribution of Stresses in Arch Dams Due to Creep of Concrete," by Chu Po-fang (2612/0130/5364), Research Institute of Hydraulic Engineering and Hydroelectric Power (Shui-li Shui-tien K'o-hsueh Yen-chiu So; 3055/0500/3055/7193/4430/1331/4282/4496/2076) (pp 18-26)

"Activity Stability of Gyroscopes," by Chang Szu-ying (1728/0843/3467), Northeast Engineering College (pp 27-30)

"General Instability of an Elastic Circular Cylindrical Shell," by Lo Tsu-tao (5012/4371/6670) and Wu Lien-yuan (0702/6647/0337), both of Shanghai Chiao-t'ung University (pp 39-57)

"Torsion of a Circular Shaft With Two Circular Arc Cracks," by Wang K'ai-fu (3769/7030/4395), Fu-tan University (pp 58-63)

"Comment on Li Min-hua's (2621/2404/5478) Book, Ying-hua Ts'ai-liao te Chu-tui Ch'eng-su-hsing P'ing-mien Ying-li Wen-t'i te Yen-chiu (Research on Plastic-Plane-Stress Problems With Axial Symmetry in the Strain-Hardening Range)," by Wang Jen (3769/0088), Peking University (pp 64-66) (FOR OFFICIAL USE ONLY)

THERMAL BUCKLING OF SUPERSONIC WING COVER PLATES ANALYZED MATHEMATICALLY -- Peiping, Li-hsueh Hsueh-pao, Vol 4, No 3, Jul 60, pp 221-226

[The following is an English abstract which appeared at the end of an article, "Thermal Buckling of Supersonic Wing Cover Plates," by Chao Hui-yuan (6392/1920/0337), Northeast Engineering College.]

This paper presents a mathematical analysis of the thermal buckling problem of supersonic wing cover plates. For the sake of simplicity, the cover plate is considered as an anisotropic plate with clamped edges. For general flight conditions, the problem is established as an eigenvalue problem; for specific flight conditions, an approximate solution and numerical results are obtained with the help of energy considerations. (CONFIDENTIAL)

TABLE OF CONTENTS OF PHYSICS BULLETIN -- Peiping, Wu-li T'ung-pao, No 3, Jun 62

"Semiconductor Solid Circuits," by Yuang Kang (7086/0474) [no affiliation given] (pp 97-104) [a documented survey article]

"Sound Intensity Measurement," by Tu Kung-huan (2629/2396/3562) [no affiliation given] (pp 105-111) [a documented survey article.]

"Photo Oscillators and Amplifiers," by N. G. Basov, O. N. Krushin, and Yu. M. Popov [no affiliations given] (pp 112-118) [According to a note, the article originally appeared in the Soviet magazine Nature, No 12, 1961, pp 16-25.]

"Application of the Doppler Effect in Radar Technique," by Sun T'ing-hao (1327/1656/6275) [no affiliation given] (pp 119-125) [a documented survey article]

"Models of Atomic Nuclei," by Liu A-ch'uan (0491/7093/1557) [no affiliation given] (pp 126-132) [a documented survey article based, according to a note, upon "Nuclear Models", by R. V. Wageningen, American Journal of Physics, Vol 28, 1960, p 425]

"Centripetal and Centrifugal Forces on a Artificial Satellite," by Li Tse-hua (2621/3419/5478), Engineering Physics Teaching and Research Section, Chiao-tso Mining College (Chiao-tso K'uang-yeh Hsueh-yuan; 3542/0155/4349/2814/1331/7108) (pp 132-136) [an introduction to the problem on a popular level]

"Preliminary Suggestions for the Improvement of the Apparatus Use in Two Physical Experiments," by Ch'u Sung-hua (5969/2646/5478) [no affiliation given] (pp 136-138)

"How to Teach 'Circuit Calculation,'" by Chang Chen-ch'iu (1728/6966/3808) [no affiliation given] (pp 138-140)

"Some Thoughts on the Use of the Potentiometer," by Wang Ch'i-tsu (3076/0796/4371), Chekiang Medical College (pp 141-144) (FOR OFFICIAL USE ONLY)

DISTINGUISHED MATHEMATICIAN HONORED -- Peiping, Kuang-ming Jih-pao,  
5 Sep 62, p 1

Prof Hsiung Ch'ing-lai (3574/1987/0171), a 70-year-old mathematician, was honored at a gathering held on 4 September 1962. Altogether over 60 persons attended, including Chang Chin-fu (1728/0513/1133), and Hsiung's farmer coworkers Wu Han (0702/2480 + 0698) and Ch'u T'u-nan (2806/0956/0589).

From 1921 until 1937, Hsiung set up mathematics departments in South-eastern University in Nanking, in Tsinghua University in Peiping, and in Yunnan University in K'un-ming. Upon his return from France in 1957, Hsiung, already well advanced in years, organized a class on the theory of functions for the Peiping area.

Many of Professor Hsiung's former students were present at the gathering. These included noted mathematician Hua Lo-keng (5478/5012/1649), physicist Ch'ien San-ch'iang (6929/0005/1730), physicist Yen chi-tz'u (0917/3444/1964), physicist Chao Chiu-chang (6392/0046/4545), and Prof Chuang Ch'i-t'ai (1641/0967/3141), Mathematics Department, Peking University.

#### TECHNICAL SCIENCES

NORTHEAST ENGINEERING COLLEGE EXCHANGES DATA WITH PRODUCTIVE UNIT -- Peiping, Kuang-ming Jih-pao, 1 Sep 62, p 1

For a long time, the Iron Smelting Teaching and Research Section of Northeast Engineering College has maintained close relationships with productive units for the purpose of developing scientific research work and exchanging academic viewpoints and data with them. This college recently held a reports conference at which the iron smelting teaching and Research Section presented seven papers, most of which concerned actual production problems which the professors had been investigating for a long time. The papers contained many new ideas significant to production processes. For instance, they summarized experience in blast furnace production since 1958 and presented a theory of fortified blast penetration which has been employed in production by some production units.

One way in which this teaching and research section maintains regular close liaison with productive units is by organizing instructors and students to take part in productive work. During the past year, instructors in the teaching and research section have spent an average of 6 - 7 weeks each in the plant. When they return, the section organizes an exchange of experience and an analysis of the characteristics and problems in the different plants. When a research project has reached a certain point, the section organizes instructors to visit the productive units, where they report on the research and solicit opinions. In addition to this, the instructors actively participate in discussion meetings on production problems, and plant technicians are invited to take part in reports conferences at the school.

COLLECTION OF PAPERS ON KARST THEORY PUBLISHED -- Peiping, Kuang-ming  
Jih-pao, 26 Aug 62, p 2

China has recently published its first book on research in the karst theory, Ch'uan-kuo K'o-ssu-t'e Li-lun Yen-chiu Lun-wen Hsuanchi (National Selection of Research Papers on the Karst Theory). The papers in this book were selected from papers and reports presented at the First National Karst Conference which was held early in 1961.

A portion of the papers in this collection discuss the development of karst and factors which influence its development. Another group of papers discuss stable leakage from reservoirs and dam foundations in karst areas, the utilization of subsurface water in karst areas, and problems of geology, engineering, etc. in karst along railway routes. One paper introduced experiences in the use of electrical survey for a factory foundation in a karst area. These papers provide rich scientific data for any future construction or irrigation projects in karst areas.

KIRIN INDUSTRIAL UNIVERSITY GRADUATES GROUP OF STUDENTS -- Peiping, Kuang-ming Jih-pao, 29 Aug 62, p 2

After 5 1/2 years of leisure time study, 82 students in the automotive design and machine building specialties of the evening university, Kirin Industrial University, were graduated recently. The curriculum prescribed by their vocational instruction plan was similar to that of a 5-year engineering and technical university.

The quality level of these graduates is relatively good and approaches or reaches that of full-time students in a similar course. Some of the worker-students made good grades, although their backgrounds were relatively deficient at the time they entered the school.

DISCUSSION CONFERENCES AT PEIPING PETROLEUM COLLEGE -- Peiping, Kuang-ming  
Jih-pao, 28 Aug 62, p 2

The Machinery and Electricity Department, Peiping Petroleum College, held five department-wide conferences during the last three semesters. Problems requiring more thorough discussion were dealt with by smaller discussion groups made up of instructors.

The first of the five conferences was held in the first half of 1961. It dealt with improvement in teaching methods, as did the others that have been held since then. Instructors from the Engineering Drafting, Mechanics, Metallurgical Engineering, Machinery Principles, and Machinery Parts Teaching and Research Sections have participated in the discussion of improvements to be made in the quality of the work prepared by the students. -- Fang Hua-ts'an (2455/5478/3605), deputy director, Machinery and Electricity Department, Peiping Petroleum College.

MISCELLANEOUS

ACADEMY OF SCIENCES RECRUITS GROUP OF RESEARCH STUDENTS -- Peiping, Jen-min Jih-pao, 2 Sep 62, p 2

This year, a few of the institutes subordinate to the Chinese Academy of Sciences have recruited 213 research students who will begin studying under the direction of their mentors. This group of research students was selected from among the best students in the graduating classes of higher level schools. Under the selection procedure used, the students volunteered within each of the fields specified by the scientists, and the best among them were nominated by the school. Following this, they were examined personally by the scientists in their fields.

This year, 50 research institutes of the Academy of Sciences will be recruiting and examining research students and 182 scientists will act as their mentors. New research students have been recruited this year by many famous scientists, such as Mathematician Hua Lo-keng (5478/5012/1649), Physicist Chao Chung-yao (6392/1813/1031), Chemists Huang Ming-lung (7806/7686/7893) and Wang Yu (3076/3731), Biologists T'ang P'ei-sung (3282/0160/2646) and Wang Chia-chi (3069/1367/2813), Geologist Yin Tsan-hsun (1438/6363/8133), Economist Yen Chung-p'ing (0917/0022/1627), Paleontologist Hsia Nai (1115/7845), and Specialist in Mechanics Kuo Yung-huai (6753/3057/2037).

Of the research students who have been recruited to the Academy of Sciences since 1955, 67 have already been formally graduated and another 81 will soon have completed their dissertations and examinations.

BULGARIAN SCIENTIFIC AND TECHNOLOGICAL DELEGATION ARRIVES IN CHINA -- Peiping, Jen-min Jih-pao, 26 Aug 62, p 2

A four-member scientific and technological delegation from Bulgaria arrived in Peiping 25 August 1962. The delegation, led by S. Gulemezov, chairman of the Bulgarian delegation to the Joint Committee for Sino-Bulgarian Scientific and Technological Cooperation and Vice-president of the Bulgarian State Planning Commission, has come to China to attend the sixth meeting of this joint committee.

Among those present at the airport were Wei Chen-wu (7614/7201/0063), chairman of the Chinese delegation to the joint committee and Vice-Minister of Agriculture, and Ch'en Ping (7115/0393), deputy director of the International Bureau of the Scientific and Technological Commission.

SINO-CUBAN SCIENTIFIC AND TECHNOLOGICAL AGREEMENT SIGNED -- Peiping, Kuang-ming Jih-pao, 25 Aug 62, p 3

A scientific and technological cooperation agreement was signed between China and Cuba on 23 August 1962 in Havana. Minister of Economy Regiono Boti signed for Cuba and Ambassador Shen Chien (3947/0256) signed for China. Also present at the occasion were Cuban Foreign Minister Raul Roa, Chinese embassy counselors, and officials of the Cuban Ministries of Economy and Foreign Affairs.

BIOGRAPHIC INFORMATION

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

CHANG Ching-ju (1728/2417/1172), assistant professor and chief of Mathematics Teaching and Research Section, [Department of Mathematics and Physics] Tientsin University. (Peiping, Kuang-ming Jih-pao, 15 Jun 62, p 1)

CHANG T'ing-yin [no affiliation given], author of dissertation (1961) for the scientific degree of Candidate of Technical Sciences, "Problems on the Formation of Surface Runoff and Effect of Drainage Systems on It," in Russian. (Moscow, Izvestiya Timiryazevskoy Akademii, No 2, Jun 62, p 240)

CHANGE Yang-hsiang, assistant professor, chief, Botany Teaching and Research Section, Honan Agricultural College, has more than 20 years of teaching experience. (Peiping, Kuang-ming Jih-pao, 15 Jun 62, p 2)

CHAO Tz'u-keng (6392/1964/1649), professor, Department of Mathematics, Peiping Normal University. (Peiping, Kuang-ming Jih-pao, 17 Aug 62, p 2)

CH'EN Wei-p'ei [no affiliation given], author of dissertation, "On the Method of Injection in Studying Blood Vessels of the Human Cutis," in Russian. (Moscow, Nauchnyye Raboty Aspirantov i Klinicheskikh Ordinators [Tsentral'nyy Institut Uovershenstvovaniya Vrachev], No 7, Jul 62, pp 220-224)

CH'EN Yin-ku (7115/5593/6253), professor and director of Department of Radio Engineering, Tientsin University. (Peiping, Kuang-ming Jih-pao, 15 Jun 62, p 2)

CHIA Ta-ling [no affiliation given], coauthor with V. V. Rachinskiy and Ye. D. Chistova of article, "Investigation on Dynamics of Transferring Salt Solution in Porous Materials," in Russian. (Moscow, Izvestiya Timiryazevskoy Sel'skokhozyaystvennoy Akademii, No 2, Jun 62, pp 165-183)

CHIANG Ta'u-sheng (5592/2945/0581), professor  
 TS'UI Ti-seng (1508/3321/0300), 70-year-old veterinarian  
 KAO Kuo-ching (7559/0948/2529)

Deputy directors of Institute of Chinese Traditional Veterinary Medicine, Chinese Academy of Agricultural Science (Chung-kuo Nung-yeh K'o-hsueh-yuan Chung-shou-i Yen-chiu-so, 0022/0948/6593/2814/4430/1331/7086/0022/3757/6829/4282/4496/2076). (Peiping, Kuang-ming Jih-pao, 29 Jun 62, p 1)

CHOU I-liang (0719/0110/5328), chief of Forest Plants Teaching and Research Section, Northeast College of Forestry. (Peiping, Kuang-ming Jih-pao, 11 Jan 62, p 2)

CHOU Kuan-yuan [no affiliation given], coauthor with D. G. Kudlay and S. V. Prozorovskiy of article, "Mutagenic Action on Antibiotics. Report 1. Production of Auxotrophic Mutants S. Typhi murium From Antibiotic-Resistant Cultures," in Russian. (Moscow, Antibiotiki, No 4, 1962, pp 291-296)

CHU Feng-shu [no affiliation given], author of dissertation (1961) for the scientific degree of Candidate of Technical Sciences, "Inter-Farm Network of Rice Irrigation System and Automation of Water Distribution on It," in Russian. (Moscow, Izvestiya Timiryazevskoy Akademii, No 2, Jun 62, p 240)

CHU Shih-ling [no affiliation given], author of dissertation (1961) for the scientific degree of Candidate of Technical Sciences, "Features of Water Utilization of Rice Systems," in Russian. (Moscow, Izvestiya Timiryazevskoy Akademii, No 2, Jun 62, p 240)

CHUANG Ch'iao-sheng (8369/1564/3932), head, Laboratory of Seed Breeding, Institute of Crop Breeding and Cultivation, Chinese Academy of Agricultural Sciences. (Peiping, Kuang-ming Jih-pao, 27 Jun 62, p 1)

CHUANG I-an (5445/0001/1344) [no affiliation given], author of an article entitled "Fluidization Technology and Its Development." (Peiping, Kuang-ming Jih-pao, 31 Aug 62, p 2)

FAN Tse-min (2868/3419/3046), chief, Physics Teaching and Research Section, Peking Water Conservancy and Electric Power College. (Peiping, 11 Jun 62, p 2)

FANG Hua-ts'an (2455/5478/3605), deputy director of Department of Machinery and Electricity, Peking Petroleum College. (Peiping, Kuang-ming Jih-pao, 28 Aug 62, p 2)

HO Yu-chin, Moscow Institute of Steel and Alloys, coauthor with V. I. Mitkalinnyy of article, "Aerodynamics of Large Martin Furnaces," in Russian. (Moscow, Izestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 7, Jul 62, pp 196-205)

HSIEH Chia-jung (6200/1367/2837), Academy of Geology, Ministry of Geology, author of article, "On the Geotectonic Framework of China," in English, first published in Chinese in Ti-chih Hsueh-pao (Acta Geologica Sinica), Vol 41, No 2, 1961, pp 218-229. (Peiping, Scientia Sinica, Vol 11, No 8, Aug 62, pp 1131-1146)

HU Ning (5170/1380), Department of Physics, Peking University, author of article, "The Derivation of the One-Meson Green Function by the Method of Dispersion Relation," in English. (Peiping, Scientia Sinica, Vol 11, No 8, Aug 62, pp 1061-1066)

HU T'ien-shih, Nanking Pharmaceutical College, author of article, "Medicinal Plant Drugs From the Tibetan Plateau of the People's Republic of China," in Russian. (Moscow, Aptechnoye Delo, Vol 11, No 4, Jul/Aug 62, p 71)

HUANG Tieh-ch'iang, Joint Institute of Nuclear Research, coauthor with L. S. Azhgirey, Yu. P. Kumekin, M. G. Meshcheryakov, S. B. Murushev, and G. D. Stoletov, of article, "Excitation of  $C^{12}$  Nuclei by 660 Mev Protons," in Russian. (Moscow, Doklady Akademii Nauk SSSR, Vol 145, No 6, 21 Aug 62, pp 1249-1252)

I Ta-shu (0242/6671/2579), researcher at the Institute of Hyrobiology, Chinese Academy of Sciences. (Peiping, Kuang-ming Jih-pao, 20 Jun 62, p 1)

JEN Yun feng (0117/0061/1496)  
 WU Te-cheng (0702/1795/2398)  
 CH'EN Jui-t'ing (7115/3843/1250)  
 KAO I-sheng (7559/1837/3932)  
 HSU Pin (5171/1755)

[All affiliated with] Institute of Materia Medica, Chinese Academy of Sciences, Shanghai; coauthors of article, "Tumor Chemotherapy: 7. Synthesis of p-, m-, and O-[Bis-(2-Chloroethyl)-Aminomethyl]-Phenylalanine Dihydrochloride and Their Antitumor Action," in English. (Peiping, Scientia Sinica, Vol 11, No 8, Aug 62, pp 1085-1096)

- KAO Jung (7559/2837), assistant professor, Peking Mining College, author of an article entitled "A Few Ideas Concerning the Improvement of Scholarly Advancement." (Peiping, Kuang-ming Jih-pao, 29 Aug 62, p 2)
- KAO Pao-hsin [no affiliation given], coauthor with I. V. Ivanov and M. D. Karasev of article, "Experimental Investigation of Three-Circuit Parametric Ultrahigh-Frequency Transformers," in Russian. (Moscow, Radiotekhnika i Elektronika, Vol 7, No 7, Jul 62, pp 1152-1156)
- KO Chih-ming [no affiliation given], coauthor with I. I. Kornilov and Ye. N. Pylayeva of article, "Investigation of the Formation and Properties of Alloys in the Titanium-Aluminium-Molybdenum System," in Russian. (Moscow, Izvestiya Akademii Nauk SSSR, Metallurgiya i Toplivo, No 4, Jul/Aug 62, pp 114-118)
- KU Yung-k'ang [no affiliation given], author of dissertation (1961) for the scientific degree of Candidate of Technical Sciences, "Investigation of the Process of Gathering Cotton from Shrubs with Spindles by Using Vibration and Intermittent Air Flow," in Russian. (Moscow, Izvestiya Timiryazevskaya Akademii, No 2, Jun 62, p 239)
- KUAN An-min [no affiliation given], coauthor with V. A. Mchedlishvili and A. M. Samarin of article, "Steel Deoxidization Process by Complex Alloys of Silicon, Manganese, and Aluminum," in Russian. (Moscow, Izvestiya Akademii Nauk SSSR, Metallurgiya i Toplivo, No 4, Jul/Aug 62, pp 31-39)
- KUEI-Fang [no affiliation given], author of dissertation, "Operative Treatment of Large and Deeply Located Cavernous Hemangioma in the Maxillary-Facial Area," in Russian. (Moscow, Nauchnyy Raboty Aspirantov i Klinicheskikh Ordinators, Tsentral'nyy Institut Usovershenstvovaniya Vrachey, No 7, Jul 62, pp 255-256)
- KUO Hsieh-hsien (6753/3610/6343), Lanchow Branch, Institute of Petroleum, Chinese Academy of Sciences; author of article, "On the Mechanism of Aromatization of Alkane. 1. The Role of Olefine Formation," in English; first published in Chinese in Jan-liao Hsueh-pao (Acta Focalia Sinica), Vol 5, No 1, 1960, pp 34-42. (Peiping, Scientia Sinica, Vol 11, No 8, Aug 62, pp 1075-1084)
- LANG Chang-hsin [no affiliation given], author of article, "On Certain Methods of Approximation for Solving Problems Concerning Unsettled Gas Filtration," in Russian. (Moscow, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 4, Jul/Aug 62, pp 128-130)

- LI Chiang-hsing [no affiliation given], author of dissertation (1961) for the scientific degree of Candidate of Biological Sciences, "Cytoembryological and Hybridological Investigations of Lupine," in Russian. (Moscow, Izvestiya Timiryazevskoy Sel'skoskozyaystvennoy Akademii, No 2, Jun 62, p 239)
- LI Kuang-pi [no affiliation given], author of dissertation, "Morphological Changes in the Liver During Thyrotoxicosis," in Russian. (Moscow, Nauchnyye Raboty Aspirantov i Klinicheskikh Ordinotorov, Tsentral'nyy Institut Usovershenstvovaniya Vrachey, No 7, Jul 62, pp 362-363)
- LI Tsun-te [no affiliation given], author of dissertation (1961) for scientific degree of Candidate of Economic Sciences, "Labor Productivity Problems on State Farms in Taganrogskiy Rayon, Rostovskaya Oblast," in Russian. (Moscow, Izvestiya Timiryazevskoy Sel'skokhozyaystvennoy Akademii, No 2, Jun 62, p 239)
- LIU Ch'iun-hua [no affiliation given], coauthor with A. S. Pashinkin and A. V. Novoselova of article, "On Germanium Diselenide," in Russian. (Moscow, Akademiya Nauk SSSR, Zhurnal Neorganicheskoy Khimii, Vol 7, No 9, Sep 62, pp 2159-2161)
- LIU Yen-kung (0491/3601/0361), vice-president of Nanking Medical College. (Peiping, Kuang-ming, Jih-pao, 30 Aug 62, p 1)
- LIU-Yu-t'ang, Biochemical Laboratory, Institute of Industrial Hygiene and Occupational Diseases, Academy of Medical Sciences USSR, Moscow; author of article, "Effect of Beryllium and Other Cations Upon Some Intermediary Reactions of Glycolysis," in Russian. (Moscow, Voprosy Meditsinskoy Khimii, Vol 8, No 4, Jul/Aug 62, pp 392-395)
- MA Shih-chun (7456/0013/7486) [no affiliation given], author of an article entitled "Zoological Ecology and its Relationship to Production." (Peiping, Jen-min Jih-pao, 30 Aug 62, p 5)
- PAK Wi-hun (2613/0251/8133), assistant professor at the Yen-pien University in the Korean Autonomous Chou, Kirin Province, a Korean scientist now engaged in research on high polymers. (Peiping, Kuang-ming Jih-pao, 31 Aug 62, p 1)
- P'EI Wen-chung (5952/2429/0022), researcher at the Institute of Vertebrate Paleontology, Chinese Academy of Sciences. (Peiping, Kuang-ming Jih-pao, 11 Jun 62, p 1)

P'ENG An [no affiliation given], coauthor with V. M. Peshkova of article, "Hydrolysis and Polymerization of Hafnium Ion in Perchloric Acid," in Russian. (Moscow, Zhurnal Neorganicheskoy Khimii, Vol 7, No 9, Sep 62, pp 2110-2114)

SHEN Yun-kang (3088/0336/6921)

SHEN Kung-mou (3088/7255/2804)

[Both affiliated with] Institute of Plant Physiology, Chinese Academy of Sciences, Shanghai; coauthors of article, "Studies on Photophosphorylation: 2. The 'Light Intensity Effect' and Intermediate Steps of Photophosphorylation," in English; first published in Chinese in Sheng-wu Hua-hsueh yu Sheng-wu Wu-li Hsueh-pao (Acta Biochimica et Biophysica Sinica), Vol 2, No 1, 1962, pp 58-66. (Peiping, Scientia Sinica, Vol 11, No 8, Aug 62, pp 1097-1106)

SH'ENG Hsin-fu (4141/5450/1133), Academy of Geology (Ti-chih K'o-hsueh-yuan, 0966/6347/4430/1331/7086) [Ministry of Geology], read a report entitled, "Problems of Delineating the Ordovician System in China," at the recent meeting of the Peiping Municipal Geological Society. (Peiping, Kuang-ming Jih-pao, 27 Jun 62, p 1)

SHIH Hua-min (2514/5478/3046), assistant professor, Botany Teaching and Research Section, Honan Agricultural College, has been engaged in classification of plants in Honan for more than 20 years, author of a paper, "A Research Report on Medicinal Plants of Honan." (Peiping, Kuang-ming Jih-pao, 15 Jun 62, p 2)

T'ANG Wenhsia, Moscow State University imeni M. S. Lomonosov, coauthor with V. B. Yevdokimov, V. V. Zelentsov, I. D. Kolli, and Vikt. I. Spitsyn of article, "Magnetic Susceptibility and Stereochemistry of Complex Mo (III) Compounds With Urea, Thiourea, and Their Derivatives," in Russian. (Moscow, Doklady Akademii Nauk SSSR, Vol 145, No 6, 21 Aug 62, pp 1282-1284)

T'AO Tsu-ts'ung, Institute of Metallurgy imeni A. A. Baykov, coauthor with Ye. M. Savitskiy of article, "Mechanical Properties and Temperature of the Recrystallization of Molybdenum Monocrystals," in Russian. (Moscow, Izvestiya Akademii Nauk SSSR, Metallurgiya i Toplivo, No 4, Jul/Aug 62, pp 133-136)

TS'AI Hsu (5591/2485), professor, Peking Agricultural University. (Peiping, Kuang-ming Jih-pao, 27 Jun 62, p 1)

- T'U Shih-lo [no affiliation given], author of dissertation (1961) for the scientific degree of Candidate of Economic Sciences, "Economic Problems on Hog-Breeding on Collective Farms in Moskovskaya Oblast," in Russian. (Moscow, Izvestiya Timiryazevskoy Akademii, No 2, Jun 62, p 239)
- WA An-ch'iu [no affiliation given], author of article, "Route Soil Investigation in Southeast Kazakhstan," in Russian. (Alma-Ata, Izvestiya Akademii Nauk Kazakhskoy SSR, Seriya Botaniki i Pochvovedeniya, No 2, Aug 62, pp 32-42)
- WANG Tsu-hua [no affiliation given], author of dissertation (1961) for the scientific degree of Candidate of Biological Sciences, "Morphological Characteristics of Pear Seedlings With Varying Degree of Acclimatization to Winter," in Russian. (Moscow, Izvestiya Timiryazevskoy Akademii, No 2 Jun 62, p 238)
- WANG Yuan (3069/0337), Institute of Mathematics, Chinese Academy of Sciences, author of article, "On the Representation of Large Integer as a Sum of a Prime and an Almost Prime," in English; first published in Chinese in Shu-hsueh Hsueh-pao Acta Mathematica Sinica, Vol 10, No 2, 1960, pp 168-181, the English version. (Peiping, Scientia Sinica, Vol II, No 8, Aug 62, pp 1033-1054)
- WU Mei-yen [no affiliation given], coauthor with T. Zharova and Z. A. Rogovin, of article, "Synthesis of Cellulose Ethers With Methylphosphenic Acid," in Russian. (Moscow, Akademiya Nauk SSSR, Zhurnal Prikladnoy Khimii, Vol 35, No 8, Aug 62, pp 1820-1824)
- WU Shao-k'uei (0702/4801/7503), expert on hybrid corn, professor and vice-president of Hanan Agricultural College. (Peiping, Kuang-ming Jih-pao, 26 Aug 62, p 1)
- YANG Chien-ch'u (2799/7002/0443) [no affiliation given], author of an article entitled "Solar Activity and Geophysics." (Peiping, Kuang-ming Jih-pao, 4 Sep 62, p 2)
- YANG Shih-te (2799/1709/1795), deputy director, Department of Civil Engineering, Tsinghua University. (Peiping, Kuang-ming Jih-pao, 26 Jun 62, p 1)
- YEH Fu-lai, author of dissertation, "Diamox and Its Effect on the Exchange of Electrolytes During Insufficient Blood Circulation," in Russian. (Moscow, Nauchnyye Raboty Aspirantov i Klinicheskikh Ordinators, Tsentral'nyy Institut Usovershenstvovaniya Vrachey, No 7, Jul 62, pp 10-16)

YU Chien-chang (0205/1696/4545)  
LIN Ying-tang (2651/5391/6855 + 3282)

[Both affiliated with] Chanchung Geological College, coauthors of article, "Review of the Problem Concerning Stratigraphic Correlation of Lower Carbonic Period Deposits on the Southern and Northern Slopes of the Ch'i-lien-shan Range According to Data of Coral Fauna," in Russian; first published in Chinese in Acta Geologica Sinica, Vol 41, No 2, pp 154-173. (Peiping, Scientia Sinica, Vol 11, No 8, Aug 62, pp 1107-1130)

YUEH Ming-i (6390/0682/5030)  
WU Fang (0702/2455)

[Both affiliated with] Institute of Mathematics, Chinese Academy of Sciences, coauthors of article, "On the Divisor Problem for  $d_3(n)$ ," in English. (Peiping, Scientia Sinica, Vol 11, No 8, Aug 62, pp 1055-1060)

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SEP 10 2004

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