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SCIENTIFIC INFORMATION REPORT

CHINESE SCIENCE

(23)

Summary No. 4578

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SCIENTIFIC INFORMATION REPORT

Chinese Science (23)

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 seven 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; the sixth series, Organization and Administration of Soviet Science, is issued monthly; and the seventh series, Outer Mongolia, is issued sporadically. Individual items are unclassified unless other specified.

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AGRICULTURAL RESEARCH

AGRICULTURAL RESEARCH IN CH'I-CH'I-HA-ERH -- Peiping, Kuang-ming Jih-pao  
18 Feb 63, p 2

After 10 years of hard work, including several failures, the planting of grapes finally was successful in Ch'i-ch'i-ha-erh [Tsi tsihar]. In early spring 1952 research workers of the Office of Pomology of the Nanchiang Institute of Agricultural Sciences brought back the first batch of grape vine cuttings from An-tung in Liaoning province. With great care, the cutting were planted and improved very well. In the winter, the research workers covered the vines with soil to prevent them from freezing. But the plants died from freezing because of the severe cold. The winter of the following year, they adopted the method of storing vegetables by placing the grape vine cuttings in a ditch 30 centimeters deep. During the severe winter, grass straw is placed on the cutting and often a wooden frame is erected and millet stalks about ten centimeters thick are placed on it to serve as a protective covering. Another 40 centimeters of dirt is piled on top of it. In this way, the grape vines will not be damaged although the weather may be extremely cold for two days. The plants will eventually bear fruit. However, this method of winter protection is expensive, requires lots of work, and is not very convenient for expansion. They then thought of the grafting method by using local cold-resistant plant stumps for the branch union, because the wild-type grape vines grown in the mountains are very hardy and cold-resistant. After experimenting for two severe winters, the grape plant stumps and the grafted branches all were undamaged by freezing, although the weather dropped to 39 degrees below zero centigrade. In September of 1962, the first crop of grapes was harvested.

DEVELOPMENT IN PLANT PROTECTION OPERATIONS -- Canton, Chung-kuo Hsin-wen,  
15 Jan 63, p 5

Since New China was established, there has been a rapid development in plant protection operations, and talented men in disease and insect control, research and cultivation have achieved marked success.

The nation gave serious attention to plant disease and insect damage control work. The Chinese Academy of Agricultural Sciences established the Institute of Plant Protection, and the provinces, cities, and autonomous areas all have research organs to render plant protection services. In the 10 years from 1949 to 1959, the nation supplied agricultural villages throughout the country with some 1,600,000 tons of agrochemicals and with more than 6 million pieces of equipment to spread chemicals. Further, it built the "An-2" airplane and the Cyclone helicopter to assist in controlling disease and insect damage.

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Laboring strenuously, entomologists along with the broad masses of peasants have reduced from 80 million mou to 3 million mou land damaged by locusts, and have selected various measures which basically control the suffering caused by the locust, which had continued for more than 2,000 years without solution. The extent of damage done to paddy rice by the paddy rice borer has been reduced from the 10-20 percent of the pre-liberation period to about 2 percent. Wheat production before the liberation was usually reduced by 10-50 percent by the wheat sucking insect, *Sitodiplosis mosellana*, but now the insect has been basically eliminated. The great enemies of cotton, the cotton aphid and the red spider mite, reduced production about 30 percent. Since 1957 scientific workers have been using organic synthesis of agricultural chemical to carry out important control experiments. At present chemical are being applied to half of the entire cotton growing area of the country to control these two insects.

Positive success was likewise achieved in disease control. Rice blast developed from Hainan Island to Heilungkiang Province. Scientific workers have initially controlled the laws regulating its emergence and have adopted a set of comprehensive control measures. In experimental areas, they basically control this blast. There are more than six kinds of ergot in China, which one caused great losses in the wheat belt. During the Japanese war of resistance there was an 8 percent loss in wheat output due to ergot. Afterwards the situation became very serious. After 10 years of struggle, the disease rate in the wheat producing areas throughout the country has been notable reduced. For example, in Heilungkiang Province the disease ration has been reduced from 15 percent to less than one thousandth percent, and in Kansu and Ninghsia, from 20 percent to 1-2 percent. Before the liberation, parasitic nematodes in wheat caused a loss in production of 500 million chin. Now the parasite has basically been eliminated in most of the wheat producing areas.

The disease and insect objectives of the predictions and forecasts of scientific workers daily increases. In 1956, predictions about only a few kinds of diseases and insects such as the locust and paddy rice borer could be made. Now the nation has the means to make predictions about 48 kinds of diseases and insects and can supply correct information concerning the control of diseases and insects. To keep pace with the daily expansion of control work, the agricultural chemical industry was established. Before the liberation, only a few places in Shanghai and Peking produced organic chemicals. There were eight kinds and the output was small. After the liberation, organic chemicals for agricultural uses developed rapidly, and by 1957, 70,000 tons had been produced. Of these various chemicals, 666 is very important, and by 1957, 54,000 tons were produced, which put it in first place in world production. Already, there are more than 30 kinds of agricultural chemicals in large scale production.

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The rank and file of scientific workers engaged in plant protection has greatly increased. At the beginning of the liberation, there were only 300 plant protection research personnel at the university level. Within the first five-year plan, there were more than 1,500 graduates from scores of higher agricultural schools who specialized in plant protection work, and now there are many times more.

SZECHWAN SERICULTURE STATION "MAKES PROGRESS UNDER AUSTERE CONDITIONS" --  
Peiping, Kuang-ming Jih-pao, 22 Feb 63, p 2

The simple and crude sericulture experimental station of the Agricultural Department of Szechwan Province, operating in a spirit of frugality for science, has accomplished much in research and made contributions to the development of sericulture operations in Szechwan.

Before the liberation, this station was established basically as a silkworm-reproduction experimental station. In the past 10 years or more it has still not undergone basic construction and still has not acquired fine equipment. As things are now, the entire station has only one microscope, a hot bed, a set of scales, and ordinary silkworm growing equipment, not even a special laboratory. Nevertheless, the station has established four points of operation; one in Nan-ch'ung where it is located, and the others in Ch'ang-an, Lo-shih, and Ho-ch'uan. After four years of hard work, it discovered the silkworm Pi-shih (1084/5723) disease and has formulated a set of simple control methods. It proposed methods for growing of silkworms economically by saving on labor force and mulberry leaves and by employing techniques that do not affect cocoon output. They proposed that Che (2678) leaves [possibly the pomegranate or a relative thereof] be utilized to improve the Che silkworm. They also took chemicals that were used for a single silkworm disease and made a general chemical that would control several kinds of diseases. The experimental station established cooperative relations with ten units, including a reel silk factory, the Sericulture department of the Southwest Agricultural College, and several local silkworm farms. When they wanted to determine the quality of cocoon silk they worked with the factory. When they wanted to compare mulberry varieties, they performed their own experiments or worked with the college. They have changed to using silkworm chrysalis as a culture medium for growing bacteria. They use their leisure time and research surpluses to develop subsidiary production.

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PEIPING AND NANKING UNIVERSITIES CONDUCT RESEARCH IN AGRICULTURAL SCIENCES  
-- Peiping, Kuang-ming Jih-pao, 31 Jan 63, p 3

The Department of Biology and Geology and Geography of Peking University have been conducting scientific research in support of agriculture.

Prof Lin Ch'ang-shan (2651/2490/0810) of the Biology Department has been working with the Institute of Zoology, Chinese Academy of Sciences, in studying the development patterns of the armyworm. Professor Lin read a paper on this subject to the recent conference on ecology held by the China Zoology Society. In this paper, he pointed out that the army worm is brought to the Northeast from the south by atmospheric currents. Instructors in the Economic Geography Teaching and Research Section, Department of Geology and Geography, have addressed themselves to the problems of land utilization in Northeast China. The Physical Geography Teaching and Research Section, Department of Geology and Geography, has been studying sand control. Prof T'ao Tsung-sun (2580/1350/1575), of the Biology Department, and instructors in the Plant Physiology Teaching and Research Section have completed a research report entitled "Three Years Research on Wheat Root-System Alimentation."

The departments of Geography, biology, meteorology, and geology of Nanking University have also been active in research in support of agricultural sciences.

Some of the Instructors and students in the Geography Department are engaged in the sand control work being carried on in Tsaidan Basin, Tsinghai Province. Others are working on a comprehensive survey of Yunan Province, including work on the delination of the geomorphological regions of Yunan.

The Biology Department of Nanking University is working on the propagation of wheat strains; the department is also participating in the work at the Yangtze River hatcheries, raising fish.

The Weather Teaching and Research Section of the Meteorology Department has prepared paper dealing with long-range weather predictions and typhoons. The Atmospheric Physics Teaching and Research Section has been engaged in research on cloud physics and artificial precipitation.

The Hydrography and Engineering Geology Teaching and Research Section has been engaged for the past few years in assisting Kiangsu, Anhwei, and Hunan provinces in the construction of almost 50 large, medium and small-scale reservoirs.

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CITES SUCCESS BY AGRICULTURAL SCIENCE RESEARCH UNITS IN EAST CHINA --  
Peiping, Kuang-ming Jih-pao, 21 Feb 63, p 2

Recently the East China Agricultural Science and Technological Work Conference was held (in Shanghai.) At this conference, agricultural science research units in provinces and cities throughout East China reported their recent successes in agricultural research. Many of these research results have been applied to agricultural production.

At this discussion meeting, more than 570 reports of important research successes were delivered. The reports covered a wide range in the development of research aimed at raising the production of important agricultural crops. The research work included the selection and planting of such crops as rice, wheat, cotton, oil-bearing plants, flax, tobacco plants, vegetables and fruit trees, and other crops of the tropical and subtropical belt; rotation of crops; soil fertilization; plant protection; veterinar, medicine; farm machinery; agricultural meteorology, and so forth.

A part of the success in research work due to the work was due to the work of summarizing the experiences of the farmers. In the systematic research work on natural conditions in these areas as well as on the basis for social economic conditions and in summarizing the traditions of the masses in the system of crop rotation and crop arrangements, the agricultural science workers have approached the agricultural production units and suggested the concept of fully utilizing natural and economic conditions in agricultural production in conjunction with planting, land utilization and cultivation. The scientific workers in Kiangsu Province concentrated their research effort on the problems of crop arrangement and rotation in Nanking, Chen-chiang, and the Chiu-ling agricultural area of Yang-chou. The scientific workers also summarized experiences of increased production in all kinds of crops. They also discussed the principles of high production and the procedure for increased production technology of the masses as discussed by several experts in agricultural production, such as Ch'en Yung-kang (7115/3057/1660), whose fine production technological experiences were used as preliminary summaries in the discussion of production theories. All the agricultural scientific workers in the provinces have conducted investigation research on the origin of different varieties of rice, wheat and cotton crops, and have selected for propagation more than 230 good varieties of which a great number have been used in the expansion of production. The "Nan-king No 1" common rice variety, which was selected and cultivated in Kiangsu Province, is now being grown widely along the middle and lower reaches of the Yangtze River, after having been test-grown in Kiangsu, Chekiang, and Anhwei provinces and proving to be an early-harvest type, strong even after having been divided in transplanting,

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and straight growing. Shantung Province has selected the "Tsi-nan No 2" millet and tested this variety of millet everywhere in China and results showed that it is able to yield 12-30 percent more than the "Pi-ma No. 1" variety of millet. Kiangsi Province has selected and cultivated the "T'eng-tse No. 3 and No 4" varieties of cotton plant as better than the "Tai-tzu-min" variety of cotton for increasing production.

Research work has produced some preventive measures in combating insect pests which cause the withering of leaves and the infestation of caterpillars on rice plants in flooded paddies. In the research work against cotton borers, Kiangsu Province is eradicating the most harmful type of insects in the cotton belt along the Yangtze River during the planting and budding seasons. Preventive measures of rather a difficult nature are being carried out; that is, the spraying of insecticide on the larvae that have survived the winter. In regard to the serious black-spot disease in sweet potatoes, Anhwei and Shantung provinces have already adopted some effective preventive measures.

The agricultural science workers have seriously taken up research work in building agricultural machinery such as rice paddy work devices, pumps, irrigation equipment and so forth for each particular place and certain conditions in cultivation. In Kiangsu Province, they are trying to innovate a power-driven capstan for paddy field cultivation. At present there are more than 600 of these devices being tested throughout this province. In Shanghai, they have tested a screw-type field cultivator. Currently, they have taken another advance step in the trial-manufacture of this form equipment. The agricultural science workers in Kiangsi Province have done research work and produced a tractor which is capable of plowing in the flooded fields and pulling along other agricultural equipment, and is also applicable for use on a wide range in production work. Fukien Province has trial-produced a new type of mechanical water wheel pump, which can be easily assembled and been widely developed.

Furthermore, in the last few years many research successes were scored by the provinces and cities in the field of animal husbandry, veterinary medicine, forestry, sericulture, tea growing, fish industry, agricultural meteorology, agricultural economics, new agricultural technology, cultivation of edible fungus, and so forth.

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AGRICULTURAL SCIENCE ACHIEVEMENTS REPORTED IN SHENSI AND KIANGSU --  
Peiping Kuang-ming Jih-pao, 17 Feb 63, p 1

The Shensi and the Kiangsu Branches of the Chinese Academy of Agricultural Sciences have recently pointed to their outstanding achievements in agricultural research and have suggested to their respective provincial agricultural units that these achievements be put into practice.

In Shensi Province, 61 of the 90 research results obtained in the past 3-4 years have already been put into practice. Among these achievements are the new strains of wheat developed jointly by the Research Institute of Grain, Chinese Academy of Agricultural Sciences, Shensi Branch, and the Northwest Agricultural College. Yu Ch'i-pao (0205/0796/5508) vice-president of the Shensi Branch and a prominent cotton specialist, has been working in conjunction with several instructors from the Northwest Agricultural College on problems of cotton maturation. Results have also been achieved by the Research Institute of Special Crops, Shensi Branch, which has been working on the cultivation of rape since 1958. The Research Institute of Soil and Fertilizers, Shensi Branch, has achieved successes in increasing soil fertility. Improved strains of domestic animals have been propagated by the Research Institute of Animal Husbandry and Veterinary Medicine. Many valuable developments have been forthcoming from the total of 13 research institutes of the Chinese Academy of Agricultural Sciences, Shensi Branch.

Over 70 valuable results have been obtained during the 13 years of research conducted by the Chinese Academy of Agricultural Sciences, Kiangsu Branch. Among these are methods of increasing the production of lapinized rinderpest vaccine and the preparation of hog tuberculosis vaccine.

KWANGTUNG SOIL AND FERTILIZER SCIENTIFIC WORKERS PUBLISH CATALOGUE --  
Peiping, Kuang-ming Jih-pao, 19 Feb 63, p 2

Kwangtung soil and fertilizer scientific workers have recently published a catalogue after 4 years of investigation and research. It is based on integrated mass experience and is entitled Kuang-tung T'u-jang Chih (Kwangtung Soil Catalogue). It furnishes preliminary scientific data as a guide in agricultural production. This catalogue is divided into four parts and consists of more than 300,000 characters. The first part discusses chiefly the distribution and differentiation of all the various types of soils in the province. These scientific workers believe that soils are continually improved in accordance with the different types of cultivation used. Thus, in planting crops, attention must be paid to plowing methods to continually improve the

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fertility of the plowed land. In the second and third parts, the scientific workers propose effective ways to improve the soil with regard to the special features of the various types of soil in the province. It is also an introduction to the abundant experiences accumulated by peasants engaged in production practices for a long time.

JOINT AGRICULTURAL RESEARCH PRODUCES SIGNIFICANT RESULTS -- Peiping, Kuang-ming Jih-pao, 21 Feb 63, p 1

After 2 years of work, the research projects jointly undertaken by the Huang-sang State Farm in conjunction with Peiping Agricultural University, other higher schools, the Institute of Pomology, Chenchow Branch, and other scientific research organizations has been brought to a successful conclusion. Since 1961, all of the following persons have visited this state farm at one time or another: Shen Ch'i-i (3088/0366/4135), vice-president of Peiping Agricultural University; Professors Ts'ai Hsu (5591/2485), Chiang Ping-chuan (1203/3521/2938), and Cheng Chung-kao (1728/0112/5514). Research assistants from the Institute of Pomology, Chenchow Branch, that have visited the state farm include Ch'iu T'ung-to (8003/0678/6995) and Li Chih-hsing (2621/4249/5887); instructors and research personnel have also come from Honan Agricultural College, and Lo-yang Branch of the Institute of Agricultural Machinery, Ministry of Agricultural Machinery.

UTILIZATION OF PHENOL WASTE WATER FOR IRRIGATION DISCUSSED -- Peiping, Kuang-ming Jih-pao, 12 Feb 63, p 2

Fairly satisfactory results have been obtained, after 4 years of study by the Institute of Forestry and Soils, Chinese Academy of Sciences, in the utilization of industrial waste water containing phenol in irrigating paddy fields. Industrial waste water is abundant in Liaoning province; this water contains nitrogenous substances that aid plant growth as well as the harmful phenol, sulfur, etc. Studies on the problem were begun in 1959 in Fushun by Wu Wei-chung (0702/4850/0022), Ch'iu Feng-ch'ung (8002/7685/8825), both of the Agrochemistry Laboratory of the institute, working under the direction of Prof Ch'en En-feng (7115/1869/7685). This group reported on their research at the December 1962 meeting of the Liaoning Conference on Agricultural Sciences.

RESEARCH ON COTTON AND HEMP CONDUCTED IN LIAONING -- Peiping, Jen-min Jih-pao, 13 Jan 63, p 2

The Liaoning Provincial Institute of Cotton and Hemp has developed improved strains of ambar hemp and disease-resistant cotton. Two improved strains of cotton are resistant to cyanosis: "Liao-mien No 1" [6697/2758; an abbreviation for "Liaoning Cotton"] and "1018-6".

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In order to reduce the serious damage done by anthracnose to the hemp in Liaoning Province, a strain of embryo hemp from North China resistant to this disease, "Chih-pao No 506" [2784/0202; an abbreviation for "Plant Protection"], was introduced in 1959; this strain was cross-bred successfully in 1961 and 1962 with strains indigenous to South China.

FERTILIZATION OF WHEAT DISCUSSED BY SHANSI ACADEMY OF AGRICULTURAL SCIENCES -- Peiping, Jen-min Jih-pao, 8 Jan 63, p 5

The Institute of Wheat, Shansi Provincial Academy of Agricultural Sciences, recently held a conference to discuss the most economical techniques of applying fertilizer of wheat fields during the winter and spring months. The discussion is expected to reduce the wastage of fertilizer, necessary because of the present general shortage of fertilizers, especially nitrogen fertilizers, in Shansi Province.

LHASA AGRICULTURAL INSTITUTE STUDIES LOCAL CONDITIONS -- Peiping, Kuang-ming Jih-pao, 7 Feb 63, p 2

The Lhasa Institute of Agricultural Science (La-sa Nung-yeh Koshueh Yen-chin So; 2139/5646/6593/2814/4430/1331/4282/4496/2076) has been studying the experiences of the local Tibetan farmers in such practices as plowing, crop selection, and irrigation. This has been done so as to select methods of increasing production that are in accordance with local conditions.

LIAONING DEPARTMENT OF AGRICULTURAL SCIENCES SELECTIVELY GROWS FOOD CROPS -- Peiping, Kuang-ming Jih-pao, 4 Feb 63, p 2

The Liaoning Branch of the Chinese Academy of Agricultural Sciences and subordinate institutes have selectively grown corn, kaoliang, paddy rice, soybeans, and other important food crops in the province. The average yield of these crops is usually about 10 percent higher than local varieties and after being popularized were very much welcomed by the peasants.

The departments of the institute, over the past several years, have conducted research on a large scale regarding several important food crops in Liaoning. After undertaking such procedures as introduction, variety identification, systematic selective breeding, and hybridization, they developed improved varieties of 12 kinds of corn, 6 kinds of kaoliang, 3 kinds of paddy rice, and 2 kinds of soybeans. They are resistant to drought, dampness, salt, wind, and lodging. Their short growing

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period is suitable for inter-cropping. Also they can endure either fertile or poor soil and are disease resistant. After repeated experiments, species characteristics and capability to increase production of these new varieties remained relatively fixed. The Feng-ch'eng Hsien Agricultural Institute, using No 7,289 and Ch'iu-sha-tzu (4428/0247/1311) as parent stock, developed a hybrid corn called Feng-tsa 5401 (7685/7177), which has the superior characteristics of possessing strong stalks, is wind resistant, and is adaptable to soil of intermediate fertility. It can be grown in the east, south, and west of Liaoning Province and in general represents an increase in production of 13-21 percent over local varieties. Besides this, the Liaoning Branch has developed a hybrid corn called "Liao-nung Erh-hao" (6697/6593/0059/5914), which is now being grown in many places in the province. To shorten the breeding period the departments of the institute, beginning in 1958, sent research personnel to Canton, Chan-chiang, Nan-ning, and Hai-k'ou where they adopted the unusual breeding method known as "northern seed development in the south" and thus shortened the growing period. For example, as originally planned, the hybridization of Liao-shuang 558 (6697/7175) corn was to be complete in 1963, but it was actually completed in 1961.

In selectively developing new strains, scientific personnel were careful to start with the facts. On the basis of weather, quality of soil, fertility, and other natural conditions, as well as local planting practices, they adopted practices of the masses as far as circumstances permitted in carrying out selective development. Chin-chou Institute of Agricultural Sciences, on the basis that in the western part of Liaoning, 9 springs out of 10 are dry, the summers wet, and the autumns windy, sought a variety of kaoliang that had strong resistance, was highly adaptable, and could endure moisture and wind. Beginning in 1953, research personnel went to various places to study physical features, soil, crop ecology, and local improved seed and collected over 500 improved varieties of kaoliang. After 7 years of selective breeding and test comparisons under such environmental conditions as drought, dampness, and wind, they finally developed the Chin-chou 9-2 (6930/3166), which is resistant to drought, dampness, and wind. It not only can be grown on flat land but also in the poor soil of land composed of valleys and hills. In 1961, 30,000 mou were planted in this new variety in Chin-chou, Chao-yang, and Fu-hsin and the output increased 10-16.5 percent over local varieties, thus being much welcomed by the masses. In 1962, the 30,000 mou quickly jumped to 450,000 mou. The Tai-yo Institute of Agricultural Sciences, in order to solve a problem of deterioration of paddy rice, conducted research and investigation for several years, and produced such new varieties as Wei-kuo (5898/0948), Ning-feng (1380/0023), and Wei-kuo No 7 (5898/0948). These new varieties are resistant to disease, lodging, and salt, and can be fertilized. The grains are easily hulled and are of good quality.

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NANKING AGRICULTURAL COLLEGE PRODUCES HYBRID HOG -- Peiping, Kuang-ming Jih-pao, 14 Jan 63, p 2

Teachers of the Animal Husbandry and Veterinary Department of Nanking Agricultural College, the Chekiang branch of the Chinese Academy of Sciences, the Provincial Department of Agriculture, and the Huai-yin Hog Breeding Cooperative, after conducting research for 8 years, have developed a new breed of improved hog, called the New Huai hog.

The special features of this new hog are that it can eat rough fodder and be maintained on a diet of rough fodder and refined fodder at a ratio of 4 to 1. Also its reproduction rate is high and fat is thick. According to measurements, this new breed produces a large quantity of meat: 81.4 percent of the body is eatable, and 42 percent of that portion is fat, which is more fat than that of the imported Yorkshire.

The new hog is a crossbreed between the Huai and the Yorkshire. The Huai hog is the most broadly distributed hog in the country and one of the most numerous. Its special features are: it is rigorous, reproduces rapidly, its young are small, growth rate slow, and quantity of meat small. The Yorkshire is an imported breed of improved qualities: its young are large, it reproduces rapidly, but can only eat refined fodder. In 1954, the teachers of the Animal Husbandry and Veterinary Department of Nanking Agricultural College selectively bred 22 mature Huai hogs which produced 98 young. These hogs were raised on the Huai-yin hog breeding farm. The teachers noticed that one short in the suckling stage grew unusually rapidly, and compared with the Yorkshire was 1.7 times bigger. After the suckling stage, however, its physique became limited. Later the teachers crossed this hog with a Yorkshire. In 1960, after 5 years of selective breeding, they had developed an ideal cross but continued selective breeding for 2 more years. Finally they had a new breed of hog with comparatively fixed inherited features -- the New Huai hog. At present, this new breed is being introduced in the Huai-yin area.

AMOY UNIVERSITY BREEDS NEW VARIETY OF DUCK -- Peiping, Kuang-ming Jih-pao, 14 Jan 63, p 2

Under the direction of Prof Chang Sung-tsung (1728/2646/6467) of the Teaching and Research Section of the Vertebrate Department, Amoy University, initial steps have been taken to breed a duck which is suitable for both eggs and meat. It is a cross between the Peiping duck and the biggest egg producer in Fukien, the Chin-ting-ma (6851/1353/7456). The

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new cross is plump, meaty, good tasting, and lays large eggs. It is heavier than the Chin-ting-ma and produces more eggs than the Peiping duck. The male weighs up to 6 shih chin and the female, more than 5 chin. (The original Chin-ting-ma female weighs 3 shih chin or more and the male, not quite 3.) The new cross begins laying eggs after only a little more than 4 months, whereas the Peiping duck requires 6 months. The eggs are large, 6 weighing one chin. It lays about 224 eggs per year, which exceeds that of the locally introduced Peiping duck but which is less than the peak level of the Chin-ting-ma, which lays about 250 a year. This duck can eat coarse fodder and can be raised in a pen or in the open.

The Teaching and Research Section also is engaged in acclimatization work on the Peiping duck. It has already resettled this famous duck in subtropical areas and has recently introduced it in southern Fukien villages.

KIRIN AGRICULTURAL ACADEMY DEVELOPS NEW VARIETY OF CHICKEN -- Peiping, Kuang-ming Jih-pao, 24 Feb 63, p 2

The Institute of Animal Husbandry of Kirin Provincial Academy of Agricultural has developed a new variety of chicken, the Kirin white, from the Lai-t'ing. It is large framed, a heavy layer of large eggs and very adaptable. In recent years, more than 200,000 have been introduced in such places, as Lu-mu, Harbin, Mu-tan-chiang, Chang-ch'un, Yung-chi, Nung-an, and Te-hui. In 1949, the institute got a batch of Lai-t'ing chickens from Kuei-mu-ssu. Four years of selective breeding proves that this chicken was a comparatively good layer with a yearly average of about 220 eggs. It was also very adaptable. Its shortcomings were: its frame was light and its eggs weighed only 55 grams. In 1951, the institute got a batch of heavyweight Lai-t'ing chickens. This chicken possessed a heavy frame and laid large eggs but it was a light layer and physically weak. In 1954, institute personnel began to cross-breed these two types of chicken and after 4 years developed a new variety. After a few more years of continuous examination it was decided that its nature was fixed. The rooster weighs 2.5-2.6 kilograms, and the hen weighs about 2.1 kilograms. The average weight of an egg is 57.5 grams, and the yearly output per chicken is about 220 eggs. An average of 90 percent of the chicks reach maturity, and an average of 89 percent of the chickens complete the whole life span. [This article is accompanied by photographs of a rooster and a Kirin white hen.]

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

WILD OIL-PRODUCING FRUIT SUCCESSFULLY TEST-GROWN -- Peiping, Kuang-ming  
Jih-pao, 13 Nov 61, p 1

The wild, heavy, oil-producing "lard fruit" introduced and test-planted in Kwangtung Province has borne blossoms and fruit. Also known as "oil gourd" it is the *Hodgsonia* Hk. f. genus of the Cucurbitaceae Family. It is heterosexual and a high climber. In shape the fruit is like the round watermelon, weighs three to five shih chin, has six seeds in pairs, which contain 74.32 percent oil, suitable for cooking purposes.

Last year, it was discovered by an investigating team of the South China Institute of Botany of the Chinese Academy of Sciences growing in Yang-ch'un Hsien, Kwangtung. Its high oil content attracted the attention of scientists and other groups. Throughout September of last year, the institute test planted it in Tung-hsing, Yang-ch'un, Ying-te, and Lo-ch'ang hsiens. Under cultivation for more than a year, 60 odd plants were introduced in Canton. Recently, some have produced white blossoms and ten have produced fruit. The 500 plants test planted in Tung-hsing last year and the 100 in Yang-ch'un this year are growing well. Some are in blossom in Tung-hsing. Some plants introduced in Ying-te, northern Kwangting, where the temperature is relatively low, have produced male blossoms. At present, concerned units in Tung-hsing and Yang-ch'un, western Kwangtung, have established nursery and propagation areas.

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

HUA-NAN BOTANICAL GARDEN CULTIVATES "LARD FRUIT" -- Peiping, Kuang-ming Jih-pao, 16 Apr 63, p 2

The wild "lard fruit" [*Hodgsonia* Hk. f. genus of the Cucurbitaceae Family], which was introduced in Tung-hsing Multinational Autonomous Hsien and Kao-chou Hsien by the South China Botanical Garden in 1960, has produced blossoms and fruit under cultivation. The seed of the fruit is rich in an almond-flavored oil. Researchers of the botanical garden's cultivation team are doing reserach on fast propagation methods so the plant may be grown domestically to produce oil.

[Two photographs accompany the article. One shows two researchers preparing a reproduction experiment in layering. The other shows the mature gourd, seeds, and kernels. The caption says the fruit looks like a round watermelon.]

NUTRITIONAL COMPOSITION OF A NEW KIND OF OIL MELON -- Peiping, K'o-hsueh T'ung-pao, No 2, Feb 63, pp 64-65

[The following is a full translation of an article by Ts'ai Hsien-yuan (5591/2009/0337) of the K'un-ming branch of the Institute of Botany, Chinese Academy of Sciences.]

The "Yu-kua" (3111/3900) [oil gourd] is also known as the "Yu-cha-kuo" (3111/3257/2654) and the "Chu-yu-kuo" (3727/3111/2654) [lard fruit]. The scientific name of the "Wu-leng" (2477/2807) variety is *Hodgsonia macrocarpa* (Bl) Cogn, var. *capniocarpa* (Ridl) H. T. Tsai. In 1933, Chinese plant specialists discovered some of these plants in P'ing-pien, Yunnan Province. In the past several years, they have also been discovered in Hsi-shuang-Pan-na, Hung-ho, and Lin-ts'ang, Yunnan Province, and in several other places in Kwangtung and Kwangsi provinces. The oil content of the kernel of the oil gourd seed is high. It is an edible oil plant which has relatively good prospects for the future in tropical zones.

C. D. V. Georgi, G. L. Teik, and T. P. Hilditch successfully analyzed the fat elements of the kernels of plants of this family [1,2], but they are not in complete agreement with our researchers. In as much as the composition of the kernel of the oil gourd which grows in Yunnan had not been published and because it could be evaluated from the point of view of its chemical composition, this research was conducted.

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The results of an analysis of sample strains taken from Ho-k'ou, Hsi-shuang Pan-na, and Te-hung are as follows:

1. Percentage Ratio of Kernel to Seed Coat

	<u>Te-hung</u>	<u>Hsi-shuang Pan-na</u>	<u>Ho-k'ou</u>
No of seeds	20.00	30.00	26.00
Total wt (gr)	405.00	1387.50	1568.00
Individ avg wt (gr)	20.30	46.20	68.00
Seed coat wt (%)	53.00	56.21	64.00
Kernel wt (%)	46.99	42.97	34.80

2. Oil Content of Kernel

	<u>Te-hung</u>	<u>Hsi-shuang Pan-na</u>	<u>Ho-k'ou</u>
Water content	5.71	6.21	5.78
Oil content	74.78	71.93	77.02
Oil residue	18.96	21.69	16.64

3. Physicochemical Properties of Kernel Oil

The pulverized kernel was placed in a Soxhlet extractor with petroleum ether for 12 hours. The solvent was withdrawn, leaving a colorless oil, which, after standing a while, gradually turned yellow and emitted a putrid acid odor.

Specific gravity	$\alpha_{25}^{25}$	0.8521-	$\alpha_{22}^{22}$	0.8596
Refractive Index	$n_D^{20}$	1.4546-	1.4551	
Polarity	$\alpha_D^{20}$	$\pm 0$		

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Acid value	0.82-1.36
Saponification no	167.13-172.56
Saponification no after acetylation	210.82-222.60
Iodine no (Hanus method)	66.514-70.31
Thiocyanogen no	47.91
Unsaponifiable matter (%)	1.45
Saturated aliphatic acid (%)	48.75
Phosphatide (%)	0.89

4. Measurements of Aliphatic Acid Composition

One hundred grams of the specimen oil were mixed with 30 grams of potassium hydroxide in 500 milliliters of ethyl alcohol and saponified for three hours, after which the mixture of aliphatic acid was separated.

a. Qualitative Analysis of Aliphatic Acid Composition

Using the single-upward-moving paper chromatography method <sup>3</sup>, we took Whatman No 1 filter paper and treated it with liquid paraffin, (the approximate content of the paraffin was 19 percent), which with 95 percent acetic acid reached equilibrium in 4-6 hours. With the same solvent, we ran the experiment at room temperature (18-20 degrees C) for 16-24 hours, developed it with copper acetate and potassium ferricyanide, got the  $R_f$  values of the various kinds of fats, and checked them against controls. The analysis of the aliphatic acids was as follows:

<u>Aliphatic Acids</u>	<u><math>R_f</math></u>
Stearic acid	18.3
Palmitic acid	27.0
Oleic acid	27.4
Linoleic acid	40.0
Linolinic acid	50.0

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b. Percentage Composition of Aliphatic Acids

Using the iodine number and the thiocyanogen number in the usual way, we calculated the percentage ratios of the unsaturated aliphatic acids to be as follows (the iodine number obtained a mean value of 68.42):

Oleic acid	27.3 %
Linoleic acid	23.41 %
Linolinic acid	0.268%

Total Aliphatic acid percentages composition were as follows:

Palmitic acid	11.02
Stearic acid	18.3
Oleic acid	27.30
Linoleic acid	23.41
Linolinic acid	0.27

In the determination of the aliphatic acid group, we isolated the unsaturated aliphatic acids by the lead salts method, then used potassium permanaganate oxidation; after removal of rudimentary unsaturated aliphatic acids, determined the iodine value as 0.12; used fractional distillation under reduced pressure and obtained two aliphatic acid contents. Frational distillation samples were checked against controls and measured errors of not more than 5.

<u>Fractional Distillations</u>	<u>First Time</u>		<u>Second Time</u>	
Sample weights (gr)	17.6735		12.3650	
Boiling process	184°-192°/2mm	192°-198°/2mm	184°-192°/2mm	192°-198°/2mm
Refractive index ( $n_D^{20}$ )	1.4309	1.4322	1.4310	1.4322
Fraction weight (gr)	3.809	13.109	2.649	9.030
Total recovery quantity (gr)		16.918		11.680
Fraction ratio (%)	22.52	77.48	22.68	77.32
Loss (%)		4.27		5.54

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NOTE: Residual liquid of fractional distillation was recovered within the high boiling point fraction.

5. Determination of Pulp Protein

The pulp resulting from extracting oil from kernel was pure white, odorless and tasteless, but after being baked dry, tasted slightly like peanut. The principal component was nitrogen, with trace elements of sugar and ash. The nitrogen matter was not examined for alkaloids. The entire amount of nitrogen matter was converted into coarse protein.

a. Content of Coarse Protein

	<u>Water Content (%)</u>	<u>Total Nitrogen (%)</u>	<u>Coarse Protein (n x 6.25) Dry Weight</u>
Te-hung	6.53	11.79	78.38
Ho-k'ou	10.18	11.19	77.82
Hsi-shuang Pan-na	8.38	11.58	78.19

b. Amino Acid Determination of Protein:

In the amino acid determination, eight essential amino acids were considered as the principal ones, including tryptophane, which was separately determined by the Tzu-pa-erh-asu-chi method /Chinese approximation of a foreign name/. Two paper chromatographic analyses were performed to make qualitative and quantitative analyses. The amino acid content of the protein was calculated to be as follows:

Leucine plus isoleucine plus phenylalanine	14.52 %
Valine	0.2 %
Methionine	0.25 %
Lysine	9.73 %
Tryptophane	3.53 %
Threonine:	results indefinite, reason not given.

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According to the above analyses, these oil melon seeds are high in fats and protein; moreover, the lysine content is relatively high. It is a remarkably high-fat, high-protein vegetable seed of nutritional value.

Comrades Mu Ch'uan-chang (2606/0356/4545), Ting Ching-k'ai (0002/7231/0418), and Nieh Jui-lin (5119/3843/7792) participated in the analyses. Comrades of the Hsi-shuang Pan-na Tropical Botanical Garden and many field workers furnished the samples, to whom thanks are extended.

INSTITUTE OF CITRUS FRUIT DISCOVERS PRIMITIVE ORANGES GROWING WILD -- Peiping, Kuang-ming Jih-pao, 12 Feb 63, p 2

The Institute of Citrus Fruit of the Chinese Academy of Sciences has in the last year been doing citrus resources investigations in Szechwan, Honan, Kwangtung, and Kwangsi provinces and has discovered three rather primitive species growing wild.

Ts'eng Mien-teng (2582/0517/4583), a citrus fruit expert and director of the Institute of Citrus Fruit believes that these three species are the rather primitive, wild, thick-skinned organses of the Yangtze River and Pearl River basins. The "Kuo-shih-kan" (3699/1452/2674) and the "T'u-kan" (0960/2674), discovered in Hua-jung Shan, Ho-ch'uan Hsien, Szechwan Province, the Yen-chieh (6851/2720) discovered in Ta-ku P'ing and in neighboring places of Tao-hsien, Honan Province, and the "Suan-chieh" (6802/2720) discovered in Ta-p'ing Ho-mu, Ts-en-ch'i Hsien, Kwangsi Province are all representative of the primitive, wild-type of the thick-skinned orange.

The thick-skinned orange originated in China. The discovery of these wild oranges can, in the field of plant taxonomy, shed light on the unclear classification of oranges and shed light on the relationship between the varieties and species of cultivated oranges.

PROFESSOR SUN HUA WRITING BOOK ON POMOLOGY -- Peiping, Kuang-ming Jih-pao, 12 Feb 63, p 2

[The following caption accompanies a picture of Prof Sun Hua (1327/5478) and Instructor Huang Shang-k'uang (7806/1424/0342).] Prof Sun Hua of Northwest Agricultural College and Instructor Huang Shang-k'uang examine a fruit trees.

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He is currently engaged in writing Kuo-shu Tsai-p'ei Chuan-t'i Hui-pien [a Compilation of Special Problems on Fruit Tree Culture].

RESEARCH ON APPLE PESTS IN LIAONING -- Peiping, Kuang-ming Jih-pao, 18 Mar 63, p 2

The Liaoning Institute of Pomology has been conducting research in An-shan on the prediction of the incidence of an apple worm, the "p'ing-kuo shih-hsin ch'ung" [5393/2654/7380/1800/5722; literally, "the apple core eater," probably related to the *Grapholitha inopinata* Heinrich or the *Carposina sasakii* Matsumura.] This worm has made serious inroads into the quality and quantity of the apples produced in the Anshan -- Ying-k'ou region. Infestation in some hsien have been reduced from 30 percent in 1961 to 10 percent in 1962, in other hsien the infestation increased from 24 percent to 50 percent over the same period of time.

NING-HSIA PLANT PROTECTION WORKERS STUDY INSECT DAMAGE -- Peiping, Kuang-ming Jih-pao, 11 Mar 63, p 2

Research workers of the Plant Protection Department of the Institute of Agricultural Sciences, Ning-hsia Hui Autonomous Region, have examined and studied the conditions of insect damage throughout Ning-hsia and have selected effective control measures to support agricultural production. In the last 3 years, they have engaged in universal examination throughout the entire area, made preliminary studies of the kinds of insects that do serious damage to crops, and have furnished valuable data for the control of these insects in the future.

[This item is accompanied by two photographs with the following captions:] Plant Protection Department workers prepare specimens of harmful insects to send to people's communes to aid in the recognition of crop damaging insects. Wu Fu-chen (0702/4395/4394), head of the Plant Protection Department, examines specimens and book of insect drawings. He is preparing to publish a catalog of Ning-hsia insects.

CUBAN BULLFROGS EXPERIMENTALLY RAISED IN CANTON -- Peiping, Kuang-ming Jih-pao, 1 Mar 63, p 2

An experimental farm was established 25 February 1963 in Canton under the Ministry of Aquatic Products to raise Cuban and other bullfrogs under experimental conditions. This experimental farm will also study the prospects for artificial breeding of bullfrogs.

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TECHNICAL SUPPORT TO AGRICULTURE

PEIPING AGRICULTURAL SCIENCE WORKERS ACTIVE -- Peiping, Kuang-ming Jih-pao, 19 Feb 63, p 1

Since last winter, 1962, a large number of scientists, professors, and civil engineers connected with central scientific research organizations and their affiliated units, and various higher level schools in the Peiping area were sent to various outlying districts to conduct inspection and research work in the field of agricultural irrigation, agricultural machinery, soil improvement and utilization, and also to help the villages in the outskirts of Peiping to carry out a technological revolution in agriculture.

Much of the research dealt with water conservancy construction, and increasing the capability of resisting drought. Field irrigation experts, including Su Tsung-sung (4725/1350/1529), director of the Institute of Irrigation, Chinese Academy of Agricultural Sciences, went to a state-operated farm in the rural district and to the important grain-producing hsien to conduct investigation and research work in irrigation control, summarize the experiences of the masses in water control and water utilization, and then to suggest constructive ideas for improving irrigation control according to advanced requirements and irrigation technology. These constructive ideas were carefully reviewed by various departmental heads in Peiping and other hsien and districts. In accordance with these constructive ideas, many water conservancy departments in the hsien and districts have sent out cadres to help the communes and brigades to construct irrigation control systems. State-operated farms also intensified their work in this field. Construction engineer Ko Ying-hsuan (5514/5593/5503) of the Institute of Irrigation, Chinese Academy of Agricultural Sciences, went to the site where wells were being constructed to direct the drilling team in their work. Tsai Hsu (5591/2485), a millet expert, often went to the millet fields to confer with the cadres of the communes and production brigades, and conduct research on serious drought conditions.

After helping the Peiping agricultural machinery departments to analyze the pedological situation in the rural districts, Tao Ting-lai (7118/7844/0171) an agricultural specialist and deputy director of the Chinese Academy of Agricultural Mechanization proposed and tested the use of a fine, light-weight plow as a substitute for the five-blade plowshare. Good results were obtained in experimental work on 2,000 mou of cultivated land by the Institute of Agricultural Mechanization in Peiping.

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The construction engineers and technicians of the Ministry of Water Conservancy and Electric Power, and the Peiping Department of Electric Power also organized work teams to conduct research and inspection in the state-operated Nan-chiao Farm and help this farm to improve its system of electrical transmission and transformers. After this improvement in the transmission line, the annual loss of more than 300,000 kilowatt-hours of electricity could be eliminated.

The engineers and technicians of the Ministry of Geology also conducted thorough joint investigations in the rural areas, first to gain an over-all picture of the underground water reserve and distribution in the rural areas. Hereafter, the development of underground water sources would depend greatly upon the data supplied according to this survey.

This spring, members of the Peiping Municipal Institute of Agricultural Sciences continued to hold scientific research "bottle-neck discussion meetings" and many others of the Central Scientific Research Organizations in Peiping also actively helped the city to conduct research on prescribed research topics in science and technology for 1963. Also, they established work cooperation with the state-operated farms in the rural districts and the people's communes, and set up experimental stations with them and arranged for research projects. To take another step in solving the problem of supplying vegetables to the city of Peiping, the Chinese Academy of Sciences, the Peiping Agricultural University, and the Peiping Municipal Institute of Agricultural Sciences made an agreement with the Szu-chi-ch'ing and Yu-hsiao-t'an communes to conduct a series of research on ways to successfully produce large quantities of vegetables and how to undertake fertilizing work, prevent plant diseases, store vegetables, etc. Central agriculture research organs have planned to help the Peiping Municipal Institute of Agricultural Sciences to develop and use the marsh lands outside the city, use fertilizer economically, irrigate with stagnant water, convert and use sandy and saline soil, and cultivate oil-bearing trees, plants, and shrubs. With the aid of research by organs in agricultural sciences, all the state-operated farms at the outskirts of Peiping have intensified the establishment of a foundation for agricultural research.

Recently, a great many agrc-technicians, irrigation experts, construction specialists, cadres of the Peiping agricultural departments and engineers and technologists, divided themselves into work teams to go to the larger state-operated farms and important grain producing areas to conduct further investigation and research, and to help these areas to set up plans to implement a revolution in agricultural technology.

KIRIN SCIENTIFIC WORKERS HELP KOREAN PEASANT SUMMARIZE PADDY RICE EXPERIENCE -- Peiping, Kuang-ming Jih-pao, 12 Feb 63, p 2

The experience at producing bumper crops of paddy rice by National Labor Model Ch'oe Chuk-song (1508/4554/2646), a Korean of Yen-pien Korean Autonomous Chou, has been summarized by scientific workers. These workers, who are from the Kirin Provincial Academy of Agricultural Sciences, Yen-pien Institute of Agricultural Sciences, and the Yen-chi Hsien Agricultural Weather Station, have already compiled Ch'oe's technical experience in two volumes, which are to be published soon.

Yen-pien Korean Autonomous Chou is China's famous paddy rice producing area of the north. Because temperature, water, and other natural conditions are comparatively poor, its paddy rice output has for a long time been very low. After the liberation, the local peasants and scientific workers continuously sought ways to increase the output. With the assistance of research personnel, Ch'oe found measures which rely on the main ear of rice and also fully utilizes effective tillering to increase output. Under his guidance the Hsin-feng-ta Team of Ch'ang-pai People's Commune, Yen-chi Municipality, applied this experience in planting paddy rice in more than 3,000 mou and kept the output high for five consecutive years. Since 1960, a comprehensive research team composed of 12 scientific and technological personnel have formed the research base of this team. They labor together with Ch'oe on a regular basis and together they plant high yields and systematically integrate their production experience in research. At present, they are in control of large quantities and reference material on the growth of local paddy rice under different conditions. On the basis of this material, they furnish scientific data to the local peasants with the result that the peasants clearly understand certain problems that are in urgent need of solution and are strengthened in their hope of continuous bumper crops in the future.

HEILUNGKIANG AGROTECHNICAL WORKERS SUMMARIZE EXPERIENCES -- Peiping, Kuang-ming Jih-pao, 11 Mar 63, p 2

The team of agrotechnical workers dispatched by the Heilungkiang Provincial Agricultural Society in 1962 to study the growth of rice in the countryside are now engaged in summarizing their experiences in the form of a special report. The team consists of instructors, research personnel, and technical cadres from the Northeast Agricultural College, the [Heilungkiang] Provincial Academy of Agricultural Sciences and the Provincial Department of Agriculture.

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HARBIN SCIENTISTS AND TECHNICIANS VISIT RURAL AREAS -- Peiping, Kuang-ming Jih-pao, 24 Feb 63, p 2

Over 70 of Harbin's scientists and technicians in the fields of agricultural mechanization, cultivation, crop breeding, and cash crops have formed seven survey teams to visit the rural areas in the Harbin area. This project is under the direction of the Harbin Scientific and Technological Committee and the Science and Technology Society. These survey teams included a seed survey team made up of instructors from agricultural colleges and provincial Academy of Agricultural Sciences. The agricultural mechanization survey team was made up of Prof Lu Ching-yun (7120/2529/0061), vice-president of the Heilung-kiang Agricultural Mechanization College; Prof Wu K'o-chou (0702/0344/9619), director of the Agriculture Department of Northeast Agricultural College; and Assistant Prof Chiang I-yuan (5592/0076/0337) and deputy director T'ung To-fu (0157/1122/4395).

Among those participating in the cash crop team was Prof Tung T-ch'ien (5516/0001/1820), Northeast Agricultural College.

STUDENTS AND INSTRUCTORS PARTICIPATE IN WATER CONSERVANCY PLANNING -- Peiping, Kuang-ming Jih-pao, 18 Mar 63, p 2

The instructors and 3d-year students in the farmland water conservancy specialty at Peiping Hydraulic Engineering and Water Power College recently went to Sang-shan Hsien to participate in agricultural water conservancy planning there. The close relationship between this hsien and the college has existed for over 5 years. The present planning involves design of a new irrigation system, the relocation of water-raising stations and electric wells, flood control, etc.

AGRICULTURAL SCHOOL UNIT COOPERATES IN PLANNING -- Peiping, Kuang-ming Jih-pao, 15 Mar 63, p 2

The Land-Planning Teaching and Research Section, South China Agricultural College, has been working in conjunction with the [Provincial] Department of Land Reclamation in various hsien of Hupeh Province in planning effective land utilization. In addition to this work, which is now completed, attention has been paid to more general problems of land utilization in South China, particularly as regards expansion of cotton acreage and increased agricultural mechanization.

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AGROCHEMICAL PLANT CONFERS WITH SCIENTISTS -- Peiping, Kuang-ming Jih-pao, 6 Feb 63, p 2

In order to facilitate implementation of its 1963 plan, the Tientsin General Agrochemical Plant (T'ien-chin Shih Nung-yao Tsung Ch'ang; 1131/3160/1579/6593/5673/4920/1681) has solicited the opinions of scientists and technicians in fields related to agrochemicals by convening a conference. Personnel have also been sent to consult with units of the [Provincial?] Institute of Agricultural Sciences. Prominent chemist Yang Shih-shien (2799/4258/0341), president of Nan-K'ai University, offered some valuable suggestions on the preparation of 1605 [insecticide] after his visit to the plant.

HONAN AGRICULTURAL SCIENTISTS AT WORK -- Peiping, Kuang-ming Jih-pao, 25 Feb 63, p 1

At the recent meeting of the Honan Congress of Model Workers, there were more than 50 agricultural science and technological workers, and other responsible persons in attendance. At this meeting, high respect and praise were given to prominent agricultural scientists in the province.

Some agricultural workers have established close relationships with science and technological workers. For example, a presiding officer at this conference, Chang Lu (1728/1462/7720), a young technologist of the Hsin-hsiang Institute of Agricultural Sciences, has had ten years of contact with 73-year old farmer Chang Tu-shu (1728/0956/2579). One of them is China's pioneer in the propagation of millet hybrids, and the other is an expert in the production of high-yielding millet. At Ma-chuang, Wen-hsien, both Chang Lu-peng and Chang Tu-shu experimented on a field of millet. Yount Chang wrote his first article on the summary of experiences of Chang Tu-shu and millet growing.

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

AIRPLANES USED IN CROP DUSTING -- Peiping, Chung-kuo Chih-wu Pao-hu K'o-hsueh (Plant Protection Science in China), Science Press, 1961, pp 1263-1282

[The following are extracts from an article "Experiences in the Use of Aircraft in Combating Insect Pests and Weeds," by Ts'ai Hsueh-lin (5591/1331/7207), Research Office of Technology and Economics, Institute of Civil Aviation Sciences (Min-hang K'o-hsueh Yen-chiu So; (3046/5300/4430/1331/4282/4496/2076).]

The first experiments attempted in China using civilian aircraft in support of agriculture took place in P'ei Hsien, Kiangsu Province, involving crop dusting with a one percent concentration of benzene hexachloride (666) of the gamma type. The area treated by airplane has increased 95 times from 1953 to 1958; by 1959, the area had increased over 200 times. This technique has been used throughout China, even including the border regions and the minority autonomous areas in the Tsinghai Plateau.

The airplane originally in use was the PO-2 but this model has now entirely given way to the AN-2. The compounds that have been used included: 666 powder, DDT powder, Ceresan lime, sprays including 25 percent DDT emulsions, DDT emulsions combined with small amounts of wettable 666, mixtures of naphthalene acetic acid and phosphates, lime-sulfur compounds, 666-DDT emulsions, and mixtures of 2,4,5-T, ammonium nitrate, and 666.

These experiments took place at various places throughout the country. These included: P'ei Hsien, Kiangsu Province; Ch'eng-an Hsien, Hopeh Province; Hsin-hsiang Special District, Honan Province; Sui-chung Hsien, Liaoning Province; Kao-t'ang Hsien and Chi-ning Municipality, both in Shantung Province; Nan-ch'ang, Kiangsi Province; Hui Hsien, Honan Province; Ta-feng Hsien, Kiangsu Province; and the Inner Mongolian Autonomous Region.

The first step to be made in planning a crop-dusting project is the compilation of a large-scale (about 1:10,000) map of the area involved.

Further research is required on several topics:

1. Control of the size of the dusting aperture and the spraying nozzle.
2. Under general conditions, the present spraying area is too large, causing a loss of chemicals.

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3. There has been a tendency to use too low concentrations and cover too large an area, thus necessitating re-spraying; this requires continued investigation.

4. Simplification of techniques, reduction of administrative personnel required, mechanization of chemical-loading, a standardization of communications signals, and improvements in the pigments used in the chemical agents.

5. Airplane Models. The presently used AN-2 is not altogether satisfactory; for small areas, close distances, and small quantities of chemicals, a smaller model airplane would be more economical. The use of helicopters in agriculture is a topic that is now being given that utmost attention. Once the problem of cost is solved, the helicopter, such as China's first domestically produced helicopter - the "Hsuan-feng (Cyclone)-25", will be extremely useful in crop dusting and other activities in support of agriculture.

AGRICULTURAL TRAINING AND MANPOWER

OVER 1,000 NATIONAL MINORITY TECHNICIANS REPORTED PLAYING ROLE IN AGRICULTURE -- Peiping, Kuang-ming Jih-pao, 13 Feb 63, p 2

More than 1,000 agricultural and hydraulic engineering technicians of the Yunnan border minority nationalities are playing a prominent role in agricultural production. Very few of these were technical personnel originally, but since the liberation leading local agricultural departments have been attentive to the selection and training of technical cadres. Meng-hai Hsien of Hsi-shuang Pan-na Thai Autonomous Chou, the important P'u-erh tea center in Yunnan, has since 1956 trained more than 200 key technicians from local minority nationality tea farms. They were trained to lead the masses to improve tea plants, and trained in such techniques as management, tea leaf picking, and tea preparation. Moreover, they rebuilt and rejuvenated whole tea orchards and planted many new tea shrubs. The embanked areas of Lu-chiang, Te-hung Thai and Ching-t'o Autonomous Chou is Yunnan's early cotton area. Insect damage to cotton was serious here, for the Thai and Ching-t'o believed the destructive insects were sacred and dared not lift a hand to destroy them. Plowing techniques were backward, and each mou produced no more than 10 chin. In the past few years, leading departments have been training large numbers of Thai and Ching-t'o technicians. At present, each cotton production team has two or three cotton technicians. They have begun to popularize methods of handling cotton and of advanced experience in destroying certain insects, chiefly the boll weevil, aphid, and bollworm. The electric power stations and electric pumping stations

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on some 50 farms in Erh-hai encircling Ta-li Pai Autonomous Chou have more than 140 technicians, and of these the majority are of Pai nationality. All took courses established by the stations and have initially mastered such techniques as equipment installations, maintenance and repair, and operations.

Most of this first group of technicians studied in training classes, but some studied in special technical schools. The majority were illiterate but after several years of study and drill, they reached elementary, middle school, or university level. Of these, 198 minority nationality students trained at K'ung-ming College of Agriculture and Forestry. At present, about 3 percent of the local agricultural and hydraulic engineering technicians are of minority nationality.

YOUNG RESEARCHERS ACTIVE IN PROVINCIAL ACADEMIES OF AGRICULTURAL SCIENCES -- Peiping, Kuang-ming Jih-pao, 7 Feb 63, p 1

There has been an increase in the number of research personnel capable of independent research at Kirin Provincial Academy of Agricultural Sciences and the Kwangtung Provincial Academy of Agricultural Sciences. At the Kirin Academy, for example, Li Kung-te (2621/0361/1795) is now deputy director of the Institute of Crop Breeding and Cultivation. Li, a 1949 graduate of Northeast Agricultural College, is presently directing the research of Li Wei-yueh (2621/4850/1471) on improved strains of millet as well as the research of Hsieh Tao-hung (6200/6670/1347) and his coworkers on hybrid corn varieties.

Li Ch'eng-tung (2621/2052/2767), a fellow graduate of Li Kung-te and presently deputy-director of the Institute of Plant Protection, has been directing research on rice blast. Hu Chih'eng (5170/0679/2052), head of the Disease Laboratory, Institute of Plant Protection, a 1951 graduate of Northeast Agricultural College, has been studying the problem of black rot with other young researchers.

Ku Mo (7357/2875), Ho Ning (0149/1380) and Ch'ien Chih-pin (6929/5268/2430), all of the Horticulture Department, and other young researchers have been studying the hybridization of several strains of apples, grapes, and other fruits resistant to cold. Ku Mo is the author of a work published by the Science Press, Tung-pei Chung-pu Kuo-shu Tzu-yuan /Fruit Tree Resources in Central Northeast China/. The Kirin Provincial Academy of Agricultural Sciences, in order to raise the quality of its researchers, holds discussion and report conferences and foreign language classes, in addition to sending personnel to Peiping Agricultural University.

The ability of young researchers at Kwangtung Provincial Academy of Agricultural Sciences has also shown great improvements since 1958. For instance, Liu Shih-hsien (0491/0099/6343), of the Sericulture Department, has made great strides in his study of the digestive physiology of the silkworm. The Kwangtung Academy's former weaknesses in agricultural physics and plant physiology have been rectified by the dispatching of young researchers to Chinese Academy of Agricultural Sciences and the Kiangsu branch of the Chinese Academy of Agricultural Sciences for further training.

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MORE THAN 1,700 SPECIALISTS TRAINED AT FUKIEN COLLEGE OF AGRICULTURE  
-- Canton, Chung-kuo Hsin-wen, 15 Jan 63, p 8

In the ten years since the founding of Fukien Agricultural College more than 1,700 specialists have been trained for the nation, including fruit tree and vegetable, plant protection, forestry, agricultural economics, agricultural mechanization, soil chemistry animal husbandry and veterinary, food processing, and apiary specialists. Most of these graduates work in provincial agricultural schools and research departments and in special area, hsien, and municipality agricultural departments. Some have become cadres. Ten researchers, including Ch'en Tai-hua (7115/0108/5478), Shih Ts-fang (0670/1795/5364), and Shih Chun-huo (2457/4783/0129), of the Fukien Provincial cane and hemp experimental station, under the leadership of sugar cane specialist Prof Chou K'o-yung (0719/0668/3196), cross-bred and developed several improved varieties of sugar cane. Li T'ien-hui (2621/1131/1920), who remained at the school and became an assistant instructor, continued to do research on the yellowing and blackening of early rice and colony structure, to supply new scientific data on Fukien paddy rice reproduction.

Some of the graduates work in ten or more provinces, municipalities, and autonomous regions throughout the country and they also have made contributions to agricultural research and other fields.

Chang Hsiung-wei (1728/7160/0251) of the Institute of Cotton, Chinese Academy of Agricultural Sciences, has for the past few years been summarizing experience in cotton field irrigation, and with Hu Ching-liang (5170/4544/5328) and other old specialists, has compiled Chung-kuo Mien-hua Tsai-p'ei-hsueh /The Cultivation of Cotton in China/. Chao Wen-chen (6392/2429/2182) of the Nan-ning Horticultural Farm, Kwangsi Chuang Autonomous Region, after many experiments, caused pineapples to produce four times a year, caused the output of individual crops to increase, and also was able to accurately control the fruiting season, resulting in plant production according to requirements. An article which he is in the process of writing has attracted the attention of horticulture circles throughout the country.

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SINKIANG HOLDS ~~REFRESHER~~ COURSES FOR AGRICULTURAL TECHNICIANS --  
Peiping, Kuang-ming Jih-pao, 11 Mar 63, p 2

Singkiang Uighur Autonomous Chou is, for the first time, holding agricultural technology refresher courses for hsien-level cadres in eight agricultural colleges. Participating in these courses of study are more than 90 leading cadres of various nationalities, including party secretaries, specialists, autonomous chou heads, hsien party secretaries, and magistrates. There are separate courses in the Uighur and Han languages. These leading cadres, who have long practical experience in agricultural production, will systematically increase their scientific knowledge of agriculture and raise their leadership level by means of study. Within a one-year period, they are preparing to study crop cultivation, plowing, plant protection, agricultural economy, and other fields, including 14 courses in techniques and theory.

GRADUATES OF KWEICHOW AGRICULTURAL COLLEGE -- Peiping, Kuang-ming  
Jih-pao, 18 Mar 63, p 2

The first group of students has been graduated from the veterinary medicine and agricultural machinery specialty at Kweichow Agricultural College. This group of graduates consists of 68 persons who began their study at this college in 1958 upon the establishment of the above two specialties. The graduates include members of the Miao, Pu-i, and T'ung minority nationalities in addition to the Han nationality; they come from such provinces as Kweichow, Szechwan, Kwangtung, Kwangsi, and Fukien, as well as from Shanghai. Most have been assigned to work in Kweichow; others have been sent to Yunnan Province.

GENERAL EDUCATION COURSES IN AGRICULTURAL SCIENCES GIVEN IN KWANGTUNG  
-- Peiping, Kuang-ming Jih-pao, 14 Feb 63, p 2

In Kwangtung Province, the Hua Hsien Scientific and Technological Society and hsien leisure time education offices recently began to conduct general education courses in agricultural science. Some 600 men and women are participating in these courses, including people's commune party branch secretaries, production team workers, and accountants. The first group of classes, set up in Wen-ch'uan, Lu-t'ien, T'ai-t'ing, Chiang-pu, and Niu-t'ou people's communes, consist of 29 classes. The principal content of study concerns scientific information embraced by the "Eight Word Constitution" of Agriculture. The society and hsien agricultural bureaus have compiled technological information on increasing the output of paddy rice with regard to improvement of low-yield land, protection from cold, dampness, and wind, and protection from insect damage, in

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accordance with the natural environment and productive features of a given hsien. They have also compiled technological information on fruit trees and economic-crop cultivation. At present, students are attending classes four or five evenings. In the future, classes will be maintained on a basis of more study during slack periods, less study during busy periods, and suspended study during the very busy agricultural periods. Personal instruction in class is considered the principal study method. This is combined with inspections of modern farms. Within a period of one year, the attempt is made to raise an individual's level to that of first grade agricultural technician. The classes are individually taught by local agricultural technicians and technical specialists.

PROMINENT SCIENTISTS POPULARIZE AGRICULTURAL SCIENCES -- Peiping, Kuang-ming Jih-pao, 24 Feb 63, p 2

Many higher schools and prominent scientists in Peiping are engaged in popular extension of agricultural sciences and agrotechnology. Among those participating in this program are Ch'ien San-ch'iang (6929/0005/1730), Hua Lo-keng (5478/5012/1649), Yen Chi-tz'u (0917/3444/1964), and Chao Chiu-chang (6392/0046/4545). Prominent physicist Chou P'ei-yuan (0719/1014/3293), vice-president of Peiping University, has also given reports of this nature.

FILMS ON AGRICULTURAL SCIENCE COMPLETED -- Peiping, Jen-min Jih-pao, 17 Jan 63, p 2

The motion picture department of the Ministry of Agriculture has recently completed a group of scientific educational films on agriculture and agricultural techniques. The subject of these films include agriculture, forestry, animal husbandry, subsidiary production, fishing, etc. Some of them introduced advanced techniques, such as "Growing Healthy Early Rice Seedlings", "Protecting Wheat From Frost", and "Preventing Cotton Regression". These films also explained the scientific theory of the technique introduced. The film "Preventing Schistosomiasis of Plow Oxen" shows the life cycle of the blood fluke and the manner in which it infects oxen, and explains measures which can be taken to prevent this.

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AGRICULTURAL RESEARCH ORGANIZATIONS AND CONFERENCES

NATIONAL AGRICULTURAL CONFERENCE CALLED BY PARTY -- Peiping, Kuang-ming Jih-pao, 9 Feb 63, p 1

The Central Committee and the State Council called a National Agricultural Scientific and Technical Work Conference to meet in Peiping, on 9 February 1963. In attendance were over 1,200 conferees, including the following prominent scientists: rice expert Ting Ying (0002/4481); geography and meteorology specialist Chu K'o-chih (4555/0668/2874); wheat specialists Chin Shan-pao (6855/0810/1405), Ts'ai Hsu (5591/2485) and Chao Hung-chang (6392/3163/3864); cotton specialists Hu Ching-liang (5170/4552/5328) and Yu Ch'i-pao (0205/0796/5508); plant pathologist Shen Ch'i-i (3088/0366/4135); plant physiologists Yin Hung-chang (3099/1347/4545) and Lou Ch'eng-hou (1236/2058/0683); botanists Lin Jung (2651/2827) and Chang Chao-ch'ien (1728/5128/7505); entomologists Ts'ai Pang-hua (5519/6721/5478), Chu Hsien-fu (2612/1720/1788), and Chu Ming-tsang (0719/2494/3647); pedologists Ma Jung-chih (7456/3310/0037), Li Ch'ing-h'ui (2621/1987/6652), and Hsiung I (3774/3015); microbiologists Tai Fang-lan (2071/5364/3482) and Teng Shu-chiun (6772/0647/5028); soil microbiologist Ch'en Hua-kuei (7115/5478/4097); forestry specialists Liu Shen-o (0491/1957/6948), Chu Chi-fan (2612/3444/0416), and Cheng Wan-chun (6774/8061/6874); aquatic products specialist Chu Shu-p'ing (2612/2885/1456); ichthyologist Wu Hsien-wen (0124/3759/2429); veterinary medicine specialists Ch'eng Shao-chiung (4453/4801/6608) and Lo Ch'ing-sheng (5012/3237/3932); animal husbandry specialist T'ang I-jen (3282/6654/0086); hydraulic engineering specialists Chang Kuang-tou (1728/0342/2435), Chang Tzu-lin (1728/1311/2651), and Su Tsung-sung (4725/1350/1529); chemist Yang Shih-hsien (2799/4258/0341); and agricultural mechanization specialist T'ao Ting-lai (7118/7844/0171).

Beginning 10 February 1963, the conference will divide itself into groups to discuss agriculture, chemical fertilizers, plant protection and agrochemicals, animal husbandry, water conservancy, forestry, agricultural machinery, internal combustion engines, aquatic products, meteorology, tropical crops, the use of mountainous areas and soil and water conservation, soil salination prevention, desert improvement, and agricultural economics.

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NIEH JUNG-CHEN CALLS ON SCIENTIFIC AND TECHNICAL WORKERS TO SUPPORT AGRICULTURE -- Peiping, Kuang-ming Jih-pao, 22 Feb 63, p 1

Vice-Premier Nieh Jung-chen (5119/2837/5271), chairman of the Scientific and Technological Commission, delivered an important address on the afternoon of 21 February to a plenary session of the National Agricultural Scientific and Technical Work Conference. The session was presided over by Vice-Premier T'an Chen-lin (6223/7201/2651).

In his address, Nieh Jung-chen described the development of science and technology as an important component part of China's socialist construction. In the modernization of agriculture particularly, workers in the foundation sciences, technical sciences, medicine, pharmacology, and health, as well as other fields, will all have their individual contributions to make. He pointed out that to carry out a technical revolution in agriculture and fully develop agricultural production in large, heavily populated country with complex natural conditions and tradition of intensive cultivation is a scientific and technical task demanding the world's level of development. Within this task there are many scientific and technical subjects which may give rise to some very important research results.

Vice-Premier Nieh discussed several important principles for the work to follow, and expressed the hope that scientific and technical workers would approach a job with a scientific attitude, carry out the party's policies, and support responsible attitude for scientists toward scientific and technical questions.

CHOU EN-LAI ADDRESSES JOINT MEETING OF AGRICULTURAL SCIENTISTS AND POLITICAL WORKERS -- Peiping, Kuang-ming Jih-pao, 27 Feb 63, p 1

On the afternoon of 26 February, the National Agricultural Science and Technology Work Conference and the Peoples Liberation Army Political Work Conference, both of which are being held in Peiping, Combined for a joint meeting. Premier Chou En-lai delivered a political report to the assembly. The meeting was presided over by Nieh Jung-chen (5119/2837/5271), chairman of the Scientific and Technological Commission.

PROMINENT AGRICULTURAL SCIENTISTS INTERVIEWED -- Peiping, Kuang-ming Jih-pao, 15 Mar 63, p 2

A number of prominent scientists were present at the National Work Conference of Science and Technology in Agriculture.

Prominent wheat specialist Chin Shan-pao, (6855/0810/1405) described his pre-"liberation" experiences, including association of Nanking Agricultural College; shortly thereafter, he joined the Party. Among his achievements are the development of an improved strain of wheat, "nan-ta 2419"

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[0598/1129; literally "great southern"]]. Chin was the chief editor of the comprehensive work, Chung-kuo Hsiao-mai Ts'ai-p'ei-hsueh (Chinese Wheat Propagation). Chin is now working on the soon-to-be-published Hsiao-mai P'in-chung Chih (Wheat Varieties). He is now 68 years old.

China's prominent specialist in veterinary medicine, Ch'eng Shao-chiung (4453/4801/6608) studies in the US more than 30 years ago. He holds doctoral degrees in two separate fields, veterinary medicine and public health. He has held the position of director of the Animal Husbandry and Veterinary Medicine Office, Ministry of Agriculture. Throughout his career, Ch'eng has been concerned with the control of the once prevalent disease rinder pest, which was eliminated in China just 6 years after the "Liberation." Both Ch'eng and Chin are deputy directors of the Chinese Academy of Agricultural Sciences.

Hu Ching-liang (5170/0352/5328), 67-year-old director of the Institute of Cotton, Chinese Academy of Agricultural Sciences, translates the latest foreign literature in his field in the evenings, in addition to his regular daytime research work.

China's prominent specialist in marine products, Tseng Ch'eng-kuei (2582/0701/1145), has been working on research involving the *Porphyra tenera* Kjellm, a species of purple laver. Tseng has received a cash award from the Chinese Academy of Sciences for his accomplishments in the fields of science and production. In 1946, Tseng was working at the Oceanographic Research Institute established on Hainan by Shantung University; there he was working with the prominent zoologist T'ung Ti'chou (4547/4574/0719).

KWANGTUNG SOIL AND FERTILIZER SOCIETY CONCERNED ABOUT LOW-YIELD LAND --  
Peiping, Kuang-ming Jih-pao, 17 Feb 63, p 2

The 1962 annual conference of the Kwangtung Soil and Fertilizer Society was held in early February 1963. The central problem discussed was the improvement of soil in low-yield fields in the province. The specialists, professors, and agricultural technicians uniformly believed that it is necessary to expand acreage planted in green manure crops and to make proper use of phosphate fertilizer to increase grain output. Of the 48 papers submitted at the conference, most were concerned with this problem. Most of the conferees agreed that the area of low-yield land in the province is rather large and that, although the soils vary considerably, they all are "diseased," chiefly because they lack organic matter and are deficient in physical and chemical properties. The best way to improve the soil is by crop rotation, especially rotation between paddy rice and peanuts or other dry crop legumes. Papers submitted at the conference maintained that the productive experience of the masses and scientific experience verify this and that the results of crop rotation have been unusually remarkable. There is still little crop rotation work done in Kwangtung chiefly because the peasants have not mastered the techniques and are unaware of the benefits. Thus, in the future, scientific research on crop rotation must be strengthened, soil improvement data must be sought, and a set of crop rotation methods for various types of land must be formulated so that crop rotation will become a fixed procedure in cultivation. The application of phosphate fertilizer in low-yield fields, in light of the experiments performed, shows that the results are still good even when compared with those of high yield fields to which phosphate had been applied. The conferees are believed that research on phosphate fertilizer application in low-yield fields must be strengthened and that the use of phosphate fertilizer and the planting of green manure crop must be integrated to improve the soil of low-yield fields.

CONFERENCE ON CHARACTERISTIC REACTIONS OF PADDY RICE TO LIGHT AND TEMPERATURE CONVENED IN CANTON -- Peiping Kuang-ming Jih-pao, 10 Feb 63, p 1

Prof Ting Ying (0002/7346), president of the Chinese Academy of Agricultural Sciences, presided over a conference of some 20 specialist, teachers, and research personnel, which convened recently in Canton. The conference summarized research work done in 1962 on reaction characteristics to light and temperature of the varieties of paddy rice grown in China.

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China's paddy rice growing areas are vast, covering the Torria, Temperate, and Frigid zones. Paddy rice of the various areas all have different ecological features and are suitable to the areas in which they are grown. An understanding of the ecological features of these varieties, especially an understanding of their characteristic reactions to light and temperature is of important practical significance regarding correct introduction, cultivation, and selection of appropriate cultivation techniques to increase the country's output of paddy rice. At the same time, important theoretical data can be furnished to explain the developmental processes and systematic classification of paddy rice grown in China. In 1961, the Chinese Academy of Agricultural Sciences organized eight units to participate in this task, including those in Nanking, K'un-ming, Kung-chu Ling in Kirin, Yai-hsien on Hainan Island, and Mi-ch'uan in Sinkiang. These eight units planted more than 160 varieties of selected paddy rice possessing characteristics representative of those grown in the different geographical zones. In accordance with uniform research objectives, they examined these varieties under local growing conditions for light and temperature reaction. Since 1962, supplementary experimentation requiring artificial conditions has been added to the work.

Since this work began, a conference has been convened each year to summarize the achievements for the year and formulate plans for the following year. At the current conference, 17 research reports were read. The conferees maintained that, through research of the past 2 years, they have accumulated a great deal of new scientific reference material, which gives initial explanations to many complex problems such as the effects of light and heat on paddy rice, basic nutritional growth characteristics, effective cumulative temperature, and the number of days from embryonic ear differentiation to earing.

NINGSIA AGRICULTURAL SOCIETY HOLDS SCIENTIFIC CONFERENCE -- Peiping, Kuang-ming Jih-pao, 18 Mar 63, p 2

Over 100 delegates attended the recent conference on agricultural science held in Yin-ch'uan, Ningsia Hui Autonomous Region. The 85 papers submitted covered such fields as crop cultivation, selection of improved strains, soil fertilization, farm land irrigation, plant protection, agricultural mechanization, forestry, and meteorology. The conference was held under the auspices of the Ningsia Agricultural Society.

CHINESE SOCIETY OF AGRICULTURAL MACHINERY OFFICIALLY ESTABLISHED ...  
Peiping, Kuang-ming Jih-pao, 6 Mar 63, p 2

The Chinese Society of Agricultural Machinery was formally established on 3 March 1963 in Peiping. More than 200 persons attended this large conference, including scientific research workers, engineers, technologists, teachers, and among others, administrative workers and cadres of certain interested departments. At this meeting, Liu Hsien-chou (0491/0103/3166). A prominent machinery expert and first vice-president of Tsing-hua University, was elected chairman of the board of directors. T'ang Yu-chang (0781/2589/4545), vice-president of the Chinese Academy of Agricultural Mechanization Kuo Tung-tsai (6753/2767/2624) assistant chief of the Tractor Bureau of the Ministry of Agricultural Machine Building Industry, T'ao Ting-lai (7118/7844/0171) vice-president of the Chinese Academy of Agricultural Mechanization Chief Engineer Wang Man-chun (3769/5502/6874) and Tseng Te-chao (2582/1795/6389) head of the Construction Department of the Peking Agricultural Mechanization College, took positions as vice chairmen. T'ang Yu-chang serves concurrently as general-secretary. At this conference, the bylaws of the society were adopted.

Since the formation of the Preparatory Committee for this association in 1956, this committee has paired up with other interested departments to initiate academic activities among the masses. All during this time, this committee has sponsored many academic report meetings, discussion meetings and annual education meetings to deliberate on several important scientific and technological problems, carry out academic research work on agricultural machinery, and also promote the improvement of agricultural machinery science and technology and make it available to all. This committee also aided all concerned departments in the work of inspection and evaluation of newly-constructed farm implements; edited and published an educational bulletin entitled "Report Study on Agricultural Machiner" and six other magazines on agricultural machinery; conducted general educational propaganda work on agricultural machinery, and also participated in some international academic exchange activities.

UNITS OF ACADEMY OF AGRICULTURE SCIENCES

[Following are some units subordinate to the Chinese Academy of Agricultural Sciences whose existence, it is believed, has not been previously reported. Sources are given in parentheses.]

Institute of Peanuts [Hua-sheng Yen-chiu So; 9554/2923/4282/4496/2076] (Peiping, Nung-yeh Chi-shu, No 4, Apr 62, p 22)

Institute of Hog Breeding [Yang-chu Yen-chiu So; 7402/3727/4282/4496/2076], (Peiping, Nung-yeh Chi-shu, No 5, May 62, p 42)

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- Institute of Soybeans [Ta-tou Yen-chiu So; 1129/6258/4282/4496/2076], (Peiping, Nung-yeh Chi-shu, No 6, Jun 62, p 31)
- Institute of Oils [Yu-liao Yen-chiu So; 3111/2436/4282/4496/2076] (Peiping, Kuang-ming Jih-pao, 4 Dec 61, p 1)
- Institute of Sweet Potatos [Kan-shu Yen-chiu So; 3927/5620/4282/4496/2076], (Peiping, K'o-hsueh Ta-chung, No 6, Jun 60, p 225)
- Institute of Tea [Ch'a-yeh Yen-chiu So; 5420/5509/4282/4496/2076], (Peiping, Kuang-ming Jih-pao, 7 May 62, p 1)
- Institute of Sugar Beets [T'ien-ts'ai Yen-chiu So; 3929/5475/4282/4496/2076], (Peiping, Nung-yeh Chi-shu, No 6, Jun 62, p 26)
- Institute of Olericulture [Shu-ts'ai Yen-chiu So; 5600/5475/4282/4496/2076], Peiping, Nung-yeh K'o-hsueh T'ung-hsun, No 22, Nov 59, p 777)
- Institute of Cultivation and Physiology [Tsai-p'ei Sheng-li Yen-chiu So; 2707/1014/3932/3810/4282/4496/2076], (Peiping, K'o-hsueh T'ung-pao, No 11, Nov 61, p 48)
- Nanking Institute of Agricultural Mechanization (Nan-ching Nung-yeh Chi-hsieh-hua Yen-chiu So; 0589/0079/6593/2814/2894/2750/0553/4282/4496/2076], (Peiping, Kuang-ming Jih-pao, 2 Nov 62, pp 2,4)
- Institute of Irrigation [Kuan-kai Yen-chiu So; 3487/3346/4282/4496/2076], Director: Su Tsung-sung (4725/1350/1529), (Peiping, Kuang-ming Jih-pao, 19 Feb 63, p 1)
- Institute of Citrus Fruits [Kan-chieh Yen-chiu So; 2674/2720/4282/4496/2076], (Peiping, Kuang-ming Jih-pao, 12 Feb 63, p 2)

VETERINARY MEDICINE

CONFERENCE ON VETERINARY MEDICINE HELD IN TSINGHAI -- Peiping, Kuang-ming Jih-pao, 18 Feb 63, p 2

Not long ago the Tsinghai Society of Veterinary Medicine held its annual meeting for 1962 in which the members discussed the problems of rural construction. This year, agriculture experts and professors of the Northwest Institute of Veterinary Medicine of the Chinese Academy of Agricultural Sciences, the Inner Mongolia College of Animal Husbandry

and Kansu Agriculture University also participated in this meeting. At this meeting scientific workers of Shanghai made reports on special problems and discussed eight topics among which were included "experimental tests in the improvement of low yielding winter and spring grazing lands," "test planting of good grass for grazing," "inspection of reclamation land," "investigation of ponds and grass plains," and others...The grazing area in Tsinghai Province is extremely large; it is estimated that the grass plains cover an area of approximately 500 million mou (1 mou equals approximately 1/6 acre). This grazing land is the material base for developing production and animal husbandry. To better utilize this natural grassland, and to advance and develop production in animal husbandry, workers in a veterinary medicine under the general leadership of related departments during these recent years made extensive investigation and survey work of the grassland in the grazing areas in order to understand clearly the situation in regards to surface area, terrain, vegetation, and water sources in the grassland. Since last year, they conducted research work on how to properly utilize the grassland, improve the system of rotating the animals, improve the grassland, raise the rate of grassland utilization, prevention and control of rodents and insects on the grasslands and how to balance off the cultivated land...at the same time, they paid particular attention to solving the problem of drinking water for both man and animal in the grasslands and finally the development of production in animal husbandry. At this year's conference, party political leaders of Tsinghai Province laid heavy stress on the expansion of animal husbandry in the Province. Huang Ching-t'ao (7806/7234/3447), assistant head of the propaganda department of Tsinghai Province and Feng Lang (7458/3186) deputy director of the Tsinghai scientific and technological Committee, both spoke at this conference.

VETERINARY MEDICINE IN SINKIANG -- Peiping Kuang-ming Jih-pao,  
13 Feb 63, p 2

Party committee members and government officials of all levels in the Sinkiang Ko-tzu-lo-su [Kirghiz] Autonomous Chou have seriously considered the great value of developing and using veterinary medicine to promote and develop production in animal husbandry. This autonomous chou has a large area of good grazing land. Two of its four hsien are devoted mainly to production and animal husbandry; the other two are engaged partly in agriculture and partly in herding. Besides providing pasture lands for their own herds, this chou also provided grazing land for areas like K'o-shih and A-k'o-su. For this reason, the problem of prevention of animal diseases has become an important item in the development of production in animal husbandry. Seeing the usefulness of veterinary medicine for the people, the authorities as mentioned above seized

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all means to elevate the standards of veterinary medicine. First, a short term group training was initiated. Each year during winter time, a group of civilian veterinarians are gathered for training from the chou and hsiens. In 1957, the entire chou had only 57 civilian veterinarians; in 1962, this number increased to 191. At this training period, personal experiences were exchanged and the level of animal care was elevated. Second, both native and foreign, Western and Chinese techniques are used. At the present time the civilian veterinarians mostly use Western medicine and injection instruments. Thirty-four veterinarians who practice Western-style medicine are also acquainted with traditional Chinese medical treatment. A few comparatively complicated cases of animal diseases are treated by both Western and native-style medicine. In addition to demanding that workers carry out preventive measures, the Institute of Veterinary Science of the Autonomous Chou and veterinary stations in the hsiens have requested each veterinary worker to tupin, each year, three to five veterinarians. For example, three veterinarians from the Institute of Veterinary Science of the Autonomous Chou, A-pu-li-tzu and Wu-ch'ia Hsiens respectively are working together. During these 3 years, 34 civilian veterinarians have received training to enable them to handle individually any type of common ordinary animal sickness.

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NEW BOOK ON HOG VIRUS PNEUMONIA -- Peiping, Jen-min Jih-pao, 15 Jan 63, p 2

More than 13 veterinary teachers of the Nanking Agricultural College recently completed a study of hog virus pneumonia and wrote Research On Hog Virus Pneumonia, published by the Kiangsu People's Publishing House. The teachers of the Animal Husbandry and Veterinary Department at the college, have, since 1958, collectively labored and studied in more than 10 people's communes and in some state-operated farms in Kiangsu Province. They have made typical investigations of conditions and spread of hog asthma [hog virus pneumonia]. Under the guidance of Prof Chang Lo-ch'ing (7022/5012/3237), veterinarian and vice-president of the college, they completed comprehensive research work and sought the cause, and the pathological and diagnostic methods for, this disease. In the field of therapeutics, they studied more than 30 kinds of Chinese and Western drugs and methods of injection.

ARTICLE ON DISEASES FROM ANIMALS -- Peiping, Kuang-ming Jih-pao, 17 Feb 63, p 1

Prof Hsu Shou-t'ai (6079/4849/3141) of Kansu Agriculture College wrote an article for Kan-su Jih-pao (Kansu Daily) in which he describes the processes by which domestic animals serve as reservoirs of infection.

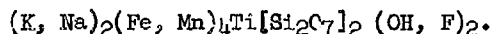
EARTH SCIENCES

CHINESE CONTINUE STUDY OF ASTROPHYLLITE -- Peiping, Scientia Sinica, Vol 12, No 2, Feb 63, pp 272-276

[The following is a full translation of the Russian-language article, "Discovery of a New Type Band of Silicon-Oxygen Radical -- Crystalline Structural Analysis of Astrophyllite," written by P'eng Chih-chung (1756/1807/1813) and Ma Che-sheng (7456/0811/3932) of Peiping Geological College. The article was received for publication on 11 December 1962.]

Astrophyllite is one of the most prevalent minerals in alkalic rock. Its crystal structure has not yet been determined. Therefore, its composition and properties are not sufficiently definite.

The chemical composition of astrophyllite is usually written as:



Results of the complete chemical analysis do not completely coincide with the above formula. [1]

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

The crystal system to which astrophyllite is related also has not been determined. A. N. Winchell and H. Winchell consider it pseudorhombic and, triclinic or monoclinic. According to H. Strunz [3], it is triclinic - pseudo-monoclinic, but according to W. T. Pecora [4], it is monoclinic or triclinic.

X-ray analysis by B. Gossner and E. Reindl, gives the following parameters of the cell:

$$\begin{array}{lll} a = 11.70 & b = 21.10 & c = 5.40 \text{ \AA} \\ a \sim 90^\circ & \beta \sim 90^\circ & \gamma \sim 94^\circ \end{array}$$

The samples we have studied were taken from the Soviet Union. Their complete chemical analysis was prepared by Ch'en Ch'ao-wu and Kung Pai-hue, in the Laboratory of Chemical Analysis at the Peiping Geological Institute. Results of the analysis are listed in the following table (Table 1). The chemical analysis of astrophyllite from Khibin in the Soviet Union are given in the table for comparison.

It is evident from the results of the analysis that the astrophyllite investigated by us is a variety rich in magnesium. It may be called Mg-astrophyllite.

X-ray oscillations and equi-incline X-ray goniometric measurements establish that the Laue type of symmetry is related to  $C_{2h}$ . Parameters of the monoclinic cell are as follows:

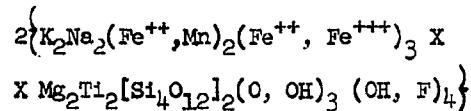
$$\begin{array}{l} a_0 = 10.43 \overset{\circ}{\text{A}} \pm 0.02 \\ b_0 = 23.00 \overset{\circ}{\text{A}} \pm 0.05 \\ c_0 = 5.35 \overset{\circ}{\text{A}} \pm 0.01 \\ \beta = 102^\circ \end{array}$$

The diffraction index of the crystal, namely  $2/m A-/-$ , was established on the results indicating the equi-incline X-ray goniometric measurements. That is, the possible space groups of the crystal are as follows:

$$C_2^3 h = A2/m; C_2^3 = A2, C_5^3 = Am.$$

The Patterson function  $P(uv)$  was calculated to explain the distribution of cations in the crystal cells. Then, proceeding from crystallochemistry, a rational preliminary structure was evolved, having the symmetry  $C_2^3 h = A2/m$ . The unit cell consists of the following:

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



The preliminary structure is proven by mapping the function of the distribution of electron density  $\rho(xy)$ . The function of electron density distribution and the corresponding projection of the structure are shown in Figure 1. Parameters of the coordinate of the atoms, derived from  $\rho(xy)$  are set forth as follows: [Table shown]

The z coordinate of the atoms is also determined preliminarily. These figures require further accuracy.

The mapping of the astrophyllite structure along the z axis appears in the form of coordinated polyhedra, as shown in Figure 2.

The form of the silicon-oxygen radical in the astrophyllite structure is shown in Figure 3. The crystallochemical formula which reflects this silicon-oxygen radical, is represented  $[Si_4O_{12}]^{8n}$ . This is the fourth new silicon-oxygen radical found in our country (of References 6, 7, and 8) which is called "the band silicon-oxygen radical of the astrophyllite-type." Such a band silicon-oxygen radical extends infinitely along the crystal z axis. The axial part of the band is actually a chain pyroxene. The method of joining the chain with the coordination Mg-O polyhedra is the same as in the pyroxene structure. It has the character of silicates typical of small cations (refer to Chapter 1 on the crystallochemistry of silicates in N. V. Belov's book /9/). The branching parts of the band silicon-oxygen radical of the astrophyllite type have a ditetrahedral form. The distance between the vertices of the angle of the ditetrahedron is commensurate with the ribs of the Fe-O octahedron.

The band silicon-oxygen radicals of astrophyllite are bonded into a layer by Ti-O octahedra. Then, by Fe-O and Mg-O octahedra in a double layer. The double layers combine with each other with the aid of K and Na, as well as through the common vertices of the angle of the Ti-O octahedron.

In the structure of Mg-astrophyllite, Mg has its own crystallographic place, but does not randomly replace  $Fe^{++}$ .

K and Na also have their own crystallographic place in the structure of astrophyllite. They cannot be arbitrarily substituted among themselves.

Determination of the astrophyllite structure attests to the fact that the assumption made by V. S. Sobolev /10/ on the presence of four titanium coordinates in the astrophyllite structure remains doubtful.

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

The structure of astrophyllite well describes its physical properties, especially cleavage and the optical properties of the crystals.

We shall test for further accuracy for the parameters of the coordinate of the atoms.

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STUDY ON CRYSTAL STRUCTURE OF NEW BERYLLIUM MINERAL -- Peiping, Scientia Sinica, Vol 12, No 2, Feb 63, pp 276-278

[The following is a full translation of the Russian-language article, "Discovery of an 8-Layer Densest Occurrence -- Crystallo-structural Analysis of Taafait," written by P'eng Chih-chung (1756/1807/1813) and Wang K'uei-jen (3769/1145/0088) of Peiping Geological College. The article was received for publication on 12 December 1962.]

Taafait was discovered in 1951 by B. W. Anderson [1] and others. This sample served as materials for their study, since the type location and deposits are still unknown. Taafait was discovered in one of the deposits in our country in 1956. Geologists in China and abroad are greatly interested in this mineral.

Taafait is characterized by the composition  $\text{BeMgAl}_4\text{O}_8$  and hexagonal syngony. Its density is  $3.613 \text{ g/cm}^3$ . Parameter of its crystalline cell, according to B. W. Anderson and others, is:  $a = 5.72\text{\AA}$ ;  $c = 18.38\text{\AA}$ . The unit crystal cell contains  $4\{\text{BeMgAl}_4\text{O}_8\}$ . With the Debye crystallogram, they established the following types of systematic extinction: under diffraction,  $000l - l = 2n$ . Thus, the space group of taafait is  $D_6^0 = P6_3 22$ .

The structure of taafait has not been accurately determined. Various hypotheses have been formulated by different researchers. According to B. W. Anderson, its structure is hexagonal in its densest occurrence. A. N. Winchell [3] considers that taafait, in its chemical composition, occupies an intermediate place between chrysoberyl and spinel. However, according to A. A. Weiss [4], the structure of spinel varies from that of chrysoberyl. Therefore, the hypothesis that there is a natural formation of a transitional type between them remains doubtful.

Establishment of the structure of taafait is very helpful to us in understanding the morphotropy of the oxide and the crystallochemical bonds between Be and Mg.

The crystals used in our research were taken from a certain deposit in our country. They are hexagonal-prismatic crystals. They appear in a white striated rock in the form of separately developed crystals, found in paragenesis with fluorite, calcite, phlogopite, and in regular epitaxis with nigerite along (0001). According to Goldschmidt's determination with two-circle goniometry, the ratio of the axes of the crystals is  $a:c = 1:3.227$  (according to Kong Shu-min and Chang Ching-i). The Laue class on the Weissenberg gram is  $D_6h$ . The parameter we obtained of the hexagonal crystal cell is the same as that by the aforementioned researchers.

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

In systematic extinction, the diffraction sign of the crystal is  $6/mmmP$ -/--c. That is, the space group of the crystal could be  $D_{6h}^4 = P6_3/mmc$ ,  $C_{6v}^4 = P6_3mc$ , or  $D_{3h} = P6_2c$ . As a result of further research, it was established that the space group of taafeit is  $D_{6v}^4 = P6_3mc$ .

The preliminary structure is obtained by geometric analysis, by considering the bases of the densest occurrence, the crystallochemical features of Al, Mg, and Be, as well as the crystallochemical features which determine the structure of the chrysoberyl and spinel types.

The preliminary structure was verified through the function of the distribution of electron density  $\rho(y,z)$ . Results of the calculation and the corresponding projection of the structure are illustrated in Figure 1. Parameters of the atoms for Figure 1 are given in the appended table. [p 277]

The parameter which determines the coordinate of the atoms is 22.

The structure of taafeit is shown in Figure 2. It is evident that the oxygen ions are characterized by the 8-layer densest occurrence with the repetition  $n = 8$ , . . . /gkkkgkkk/...; i.e., .../ABCARACB/... . The densest occurrence of this type was discovered for the first time in mineralogy. Consequently, it must be called the densest occurrence of the taafeit type, just as the 4-layer densest pile is called the topaz type, and the 6-layer densest pile.../ABCACB/... is the ramsaite type.

In the structure of taafeit, Mg has a coordinate number 4. The form of bonding the Mg polyhedra with the surrounding coordinate polyhedra is the same as in the spinel structure. In taafeit, Be also has the coordinate number 4. The  $BeO_4$  tetrahedra combine with the surrounding coordinate polyhedra in two forms: as Be in chrysoberyl and as Mg in spinel. The isostructural relationship of Be and Mg was recently discovered in a synthetic mineral of the group of melilites Be-akermanites,  $Ca_2Be/Si_2O_7/$ .

In addition, determination of the taafeit structure poses the possibility of the isomorphous substitution of Be and Mg.

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CHINESE HYDROGEOLOGY STUDENTS PRESENT REPORTS -- Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Geologiya i Razvedka, No 12, Dec 62, pp 155-156

Two Chinese aspirants presented reports at the Hydrogeology Section of the Scientific Conference of the Professorial-Teaching Staff and Students of the Moscow Geological Prospecting Institute imeni S. Ordzhonikidze, held in Moscow on 3-13 April 1962.

1. HUANG Shang-yao, "Features of the Hydrogeological Study of Thermal Waters As Exemplified in the Altai, the Caucasus, and China."
2. WANG Ch'iang-yang, "Natural Distribution of Subsurface Iodobromine Waters In the West Siberian Lowlands."

STRUCTURAL GEOLOGY TERMINOLOGY DISCUSSED IN PEIPING -- Peiping, Kuang-ming Jih-pao, 4 Mar 63, p 1

The Continental Structure Division of the Peiping Geology Society held a special conference on 14 February 1963 to discuss "Terminology Problems in Movements of the Earth's Crust." Differences of opinion over the suitability of various terms used to describe the types of movement in the earth's crust became manifest. Among those participating in these discussions were: Yin Tsen-hsun (1438/6363/8113), Huang Chi-ch'ing (7806/3078/3237), Hsieh Chia-jung (6200/1367/2837), Sun Tien-ch'ing (1327/3013/0615), Hsu Yu-chien (1776/3558/1017), Feng Ching-lan (7458/2529/5663), and T'ien Ch'i-ch'ung (3944/1142/8846).

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MATHEMATICAL AND PHYSICAL SCIENCES

CHINA HOLDS SECOND NATIONAL CONFERENCE ON METAL PHYSICS -- Peiping, K'o-hsueh T'ung-pao, No 1, Jan 63, p 62

The second national conference on metal physics to be held in China met in Shanghai 26 November-1 December 1962. The conference was called jointly by the Chinese Academy of Sciences, the Chinese Metals Society, and the China Physics Society. Thirty-six papers were read to the conference; primary emphasis was placed upon X-rays and electron microscopy.

Eight of the papers presented concerned electron microscopy and metallic phase techniques, Feng Tuan (7458/4551) and Yang Ta-yu (2799/1129/1342) presented, respectively, "The Theory of Electron Microscope Image Formation by the Diffraction Method" and "The Electron Microscope Diffraction Method of Observing Dislocations in Metals." Where needed for their purposes, the various units concerned have made modifications in the model EM-3 electron microscope. Feng Tuan, of Nanking University, also read a paper on the "Observation of Corrosion-Pit Dislocations in Molybdenum Single Crystals." Chou Chih-hung (0719/1807/1347), Chiao-t'ung University, read a paper on "High-Temperature Metal Electron Microscopes."

Twenty-eight papers were read on X-ray techniques. These included "An Important Development in the Determination of Crystal Electron Density Optical Transfer," by Yu Jui-Huang (0151/3843/3874); "Diffusion Scattering in Incomplete Crystals," by Kuo K'o-hsin (6753/0668/0207); "Determining Metal Structure," by Yen Ming-kao (7346/7686/4101 over 2609); "Advances in X-ray Spectra Analysis in the Micro Region," by Hsu Ts'ui-chang (1776/5488/4545); and "Small-Angle Scattering of X-rays," by Hsu Shun (6079/7311).

Tsinghua University was able to assist the Shanghai Research Institute of Materials (Shang-hai Ying-yung Ts'ai-liao Yen-chiu So; 0006/3189/2019/3938/2624/2430/4282/4490/2076) in their measurement of chromium-manganese-nitrogen steels. The Research Academy of Non-Ferrous Metals has been carrying out structural analysis of the oxides produced in aluminum sintering. The Institute of Metals, the Institute of Physics, and the Research Academy of Iron and Steel, have been studying the crystal structure of copper, iron-silicon, and iron-nickel alloys. Hardening of aluminum, magnesium, and iron is being studied by the Institute of Metallurgy, Kirin University, and Nan-k'ai University.

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The Institute of Metals is using diffusion diffraction methods in its measurements; the Institute of Physics and Kirin University are measuring the density of dislocations in metals that have undergone deformation.

Some theoretical papers were also read at the conference; these included "A Theory of Electron Bond Structure in White Tin" and "Inter-Element X-ray Fluorescence Radiation Intensity," by Yu Jui-huang and Ch'en Ch'ih (7115/4609), respectively. -- Liu Hsiang-sheng (0491/5046/5116)

INSTITUTE OF PHYSICS BUILDS MODIFIED ULTRAVIOLET SPECTROGRAPH --  
Peiping, Wu-li Hsueh-pao, Vol 19, No 1, Jan 63, pp 11-24

The following is an abstract of an article, "A Two-Meter Normal Incidence Ultraviolet Spectrograph," by T'ao Shih-yao (7118/0013/1031), Wang Wen-shu (3769/2429/2579), and Sun Hsiang (1327/3276), all of the Institute of Physics, Chinese Academy of Sciences. The authors acknowledge the assistance of Hsieh Te-ch'un (6200/1795/4783), of the affiliated plant, Institute of Physics, Chinese Academy of Sciences. The article was received for publication in July 1962.

A two-meter normal incidence ultraviolet spectrograph has been designed and built by the Institute of Physics, Chinese Academy of Sciences, and the Institute's affiliated plant. The spectrograph has an angle of incidence of 7.5 degrees and covers the spectral range 2100 Å -- 200 Å with an average dispersion of 8.7 Å/mm. A low-pressure condensed spark discharge tube is used as the light source, giving sharp and intense spectral lines of various degrees of ionization.

In designing the spectroscope, the authors relied strongly on Lee (P. Lee and G. L. Weissler, Journal of the Optical Society of America, Vol 42 (1952), p 80) in matters relating to the light source. Lee's design was modified by welding the quartz capillar terminal to the quartz tube and increasing the size of the electrode within this tube to 9 mm.

The diffraction grating, made of aluminum-lated glass, has a radius of curvature of two meters. The calibrated area is 4 x 8.5 cm<sup>2</sup> in size and has 600 calibrations per mm. The two evacuation pumps and the oil-diffusion pump used were able to reduce the pressure

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

to  $10^{-5}$  mm Hg in a total volume of 180 liters. In the experiments, a pressure of about  $10^{-4}$  mm Hg was used. The plates in the photographic chamber were  $4.3 \times 25.5$  cm<sup>2</sup> in size and were bent into a cylindrical arc with a radius of one meter.

A 0.25 Å spread between sharp spectral lines was achieved, giving excellent focus. Spectra of some highly ionized elements were obtained, including OVI, NV, CIV, and SiIV; 279 second-order and 69 third-order emission lines were recorded in addition to the 554 first-order emission lines identified. (FOR OFFICIAL USE ONLY)

MAGNETIC PROPERTIES OF YTTRIUM-LANTHANUM IRON GARNET SYSTEM STUDIED --  
Peiping, Wu-li Hsueh-pao, Vol 19, No 1, Jan 63, pp 1-10

[The following is an abstract appearing in English in the article "Study of the Magnetic Properties and Ferromagnetic Resonance of the Yttrium-Lanthanum Iron Garnet System," by Li Kuo-tung (2621/0948/2767), Chai Ch'ing-yung (5049/3237/3077), Jao Te-ch'uan (6753/1705/0356), and Li Ching-yuan (2621/7231/0337), all of the Institute of Physics, Chinese Academy of Sciences. The authors acknowledge the assistance of Prof P'an Hsiao-shih and Prof Li Yin-yuan (2621/5593/6678) as well as the participation of T'ien Chung-shan (3944/0112/1472), Chang Wen-chin (1728/2429/6210), Yang Chung-hsing (2799/0022/5281), Liang Ping-wen (2733/3521/2429), Shih Hsiu-chen (4258/4423/4176), Ning T'ai-shan 1380/1132/1472), Lang Chu-san (6745/4376/0005), and Hsu Tien-hai (1776/3013/3189) in parts of the experimental work.]

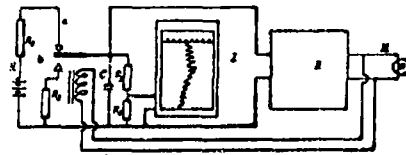
The magnetic properties and ferromagnetic resonance of the yttrium-lanthanum iron garnet system  $Y_3(1-x)La_xFe_5O_{12}$  were investigated at the compositions corresponding to  $x=0, 0.05, 0.10, 0.30, 0.50, 0.75$  and  $1.00$ . The single phase region with garnet structure determined by the X-ray powder pattern analysis and metallographic observations extends to about  $0.10 < x < 0.20$ . However, magnetic and ferromagnetic resonance observation indicate a somewhat narrower single-phase region. The saturation magnetic moments per gram  $\sigma_s$ , initial permeability  $\mu_0$ , coercive force  $H_c$ , effective g-factors  $g_{eff}$  and resonance line-width  $\Delta H$  (at 3970 and 9160 Mc) were measured as a function of lanthanum content. The variation of  $\sigma_s$  with composition and the magnitude  $\mu_0$  as viewed from various magnetization mechanisms are discussed. From the frequency dependence of  $g_{eff}$ , the intrinsic g-factors and internal fields  $H_i$  of the materials were calculated. Exponential dependence of  $\Delta H$ ,  $H_i$ , and  $H_c$  on  $x$  in certain composition regions, was observed experimentally and interpreted from the point of view of magnetic inhomogeneities. (FOR OFFICIAL USE ONLY)

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DEVICE DESIGNED FOR AUTOMATIC MEASUREMENT OF THRESHOLD STABILITY --  
Peiping, Wu-li Hsueh-pao, Vol 19, No 1, Jan 63, pp 70-71

[The following are extracts from an article, "A  
Method for Automatic Measurement of the Threshold  
Stability of Threshold Circuits," by Li Te-p'ing  
(2621/1795/1627). The article was received 31 August  
1962.]

To facilitate the automatic measurement of threshold stability,  
the author has designed the apparatus shown in Figure 1:



- I. Valve potentiometer
- II. Threshold circuit to be measured
- III. Signal lamp
- C. Large capacitance

The capacitance C is charged through the normally closed contact point "a" of the relay which is activated simultaneously with the signal lamp. As the voltage across C approaches the threshold value, the signal lamp emits a signal and causes the capacitance to discharge through the relay's normally open contact point "b". The voltage falls immediately, thus causing a restitution of the original situation and the signal ceases.

The voltage of the peak capacitance is automatically recorded on a valve potentiometer. The above described device can be modified to calculate long-period cycles by the use of a cathode follower arrangement to run an automatic electrical meter. (FOR OFFICIAL USE ONLY)

SPECTRA OF VANADIUM OXIDE CATALYST SYSTEMS RECORDED -- Peiping, K'o-hsueh T'ung-pao, No 1, Jan 63, pp 53-54

[The following is an abstract of an article, "Electromagnetic Resonance Spectra of  $V_2O_5$ -System Catalysts," by Hsu Kuang-chih (1776/1684/2535) and T'ang Yu-ch'i (0781/2589/4388). The authors acknowledge the assistance of Prof Hu Jih-heng (5170/2480/1854).]

In this paper, the authors describe and discuss the electromagnetic resonance spectra of  $V_2O_5$ - $MoO_3$ - $K_2S_2O_8$ ,  $V_2O_5$ - $K_2S_2O_8$ , and  $MoO_3$ - $K_2S_2O_8$  systems in order to consider the effect of  $MoO_3$  upon  $V_2O_5$ - $K_2S_2O_8$  systems. In all, spectra were recorded for 12 samples; the molar  $V_2O_5$  content ranged from 10 to 50 percent, the molar percentage of  $MoO_3$  ranged from zero to eight, the molar percentage of  $K_2S_2O_8$  correspondingly ranged from 90 to 50 percent.

Very clear fine structure was evident when the  $V_2O_5$  percentage was below 30 percent; as the percentage approaches 30 percent, the spectra lost sharpness, until at concentrations of around 50 percent  $V_2O_5$ , it disappeared entirely.

SPECTRA OF VANADIUM OXIDE SYSTEMS RECORDED -- Peiping, J'o-hsueh T'ung-pao, No 2, Feb 63, pp 52-54

[The following is an abstract of an article, "Electromagnetic Resonance Spectra of  $Na_2O$ - $V_2O_5$ - $P_2O_5$  Systems, by Hsu Kuang-chih (1776/1684/2535), Ch'en Su-ming (7115/4790/2494), and T'ang Yu-ch'i (0781/2589/4388). The authors acknowledge the assistance of Prof Hu Jih-heng (5170/2480/1854).]

In this paper, the authors describe and discuss the electromagnetic resonance spectra of  $Na_2O$ - $V_2O_5$ - $P_2O_5$  systems. According to the authors, these have not previously been described, despite the emphasis placed of late on the study of vitreous semiconductors, especially the determination of the electronic properties of such vitreous semi-conductors as  $V_2O_5$ - $R_xO_y$  and  $V_2O_5$ - $R_xO_y$ - $P_2O_5$ .

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

The spectra of 12 samples were obtained at 9,300 cycles per second; the molar composition of these samples ranged from one percent  $V_2O_5$ :99 percent  $NaPO_3$  to 90 percent  $V_2O_5$ :10 percent  $NaPO_3$ . The fine structure of the spectra was evident when the molar concentration of the  $V_2O_5$  was less than 10 percent; the fine structure was not evident when this concentration exceeded 10 percent.

ADSORPTION FORMULAE APPLIED TO COMPLEX EQUILIBRIUM -- Peiping, K'ohsueh T'ung-pao, No 1, Jan 63, pp 55-56

[The following is an abstract of an article, "Adsorption Theory of Complex Equilibrium," by Li Lo-min (7812/2867/3046), of Peking University; Pal Ming-chang (4101/2494/3864), of Inner Mongolian Agricultural and Animal Husbandry College, and Hsu Kuang-hsien (1776/0342/2009), of Peking University.]

In this paper, the authors used the Langmuir and other thermal adsorption formulae to express complex equilibrium. The logarithm of the complexity, the mean coordination number, and the maximum coordination number are calculated, as is the relation of the first two to the noncomplex coordination concentration.

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

FOREIGN SCIENTIFIC CONTACTS

CHINESE SCIENTISTS REPORT AT FISHERIES PLENUM -- Moscow, Rybnoye Khozyaystvo, Vol 39, No 1, Jan 63, pp 87-90

Fifteen Chinese scientists were among the representatives from Communist China, North Korea, North Vietnam, the Mongolian People's Republic, and the USSR who attended the Seventh Plenum of the Commission on Fisheries Research In the Western Pacific held in Moscow in the autumn of 1962. In all, 35 scientific reports were read and discussed at the plenum. Hsu Tieh-heng, Minister of Fisheries in Communist China, was again elected president of the commission.

Liu Hsiao-shun reported on the presence of separate schools of small yellow perch in spawning areas.

Ch'eng Ju-fen, who studied the cause for the variation of stock of large yellow perch in waters of Kwantung Province, pointed out that irrotational catch of the young perch in the past had reduced the stock of adult fish. Current regulations are aiding in replenishing this stock.

The Chinese scientists distinguish two schools of the large yellow perch in the East China and South China Seas.

Interesting data was obtained by Chinese researchers Yang Chi-ming and Lin Ching-ch'i regarding developments in the changes in the feeding of mackerel in the Yen-t'ai region of Po-hai Gulf.

The Shanghai Scientific-Research Institute obtained important results during investigation of the distribution, paths of migration, composition of the spawning schools, characteristics of their propagation, and the feeding of swordfish.

The reports of Huang Tao, Ch'ang Wen, and Su Kuo-chang of China and of K. Ye. Babayan and A. V. Krotov of the USSR investigated the problem of the breeding of grey mullet in special breeding reservoirs. Chinese fishermen have a great deal of experience in the biotechnology of the breeding of grey mullet. Thus, according to N. M. Saburenkov the author of this article, the Soviet scientists must carefully study this science from their Chinese counterparts in order to apply it to the Soviet Union.

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

Li Chi-ch'eng, Wang Chi-hsiang, and Hsu Yu-ch'eng presented in their report the results of original and complex investigation of the composition of substances with nitrogen content found in Vietnamese fish sauce.

The report of Chiang I-kuei, Chang Chin-hsia, and Ch'eng Hsi-tao was very interesting because it illustrated methods and results of experiments in determining the nutritive value of certain of the most prevalent kinds of food of the white Amur. In all, 19 kinds of food were tested. The mixed application of animal-and-plant feed for young fish fresh from the spawn raises the coefficient of food utilization.

An interesting report was presented by Lu Kuei, Jung Jang-lieh, and Chao Ch'an-ch'un on the reproduction of valuable herring /"sel'dy-khil'zy"/. in China.

In 1963, researchers in Communist China and North Korea will exchange materials on fish stock in the Yellow Sea, and will coordinate research on studying the dynamics of numbers in the composition of schools and the development pattern of the migration of grey mullet, "stavridi", and cod in the northern part of the Yellow Sea.

Scientists in the USSR, Communist China, and Outer Mongolia will continue to coordinate investigation on the study of fish stock in the basin of the Amur River, and to develop methods for their rational utilization as well as for artificial breeding. Emphasis in 1963 will be on the investigation of the biology and artificial reproduction of amur, autumn Siberian salmon, and sturgeon, as well as investigation of fish stock in the basin of the Selenga River and the Red River border between Communist China and North Vietnam.

Communist China and the USSR will conduct coordinated work for developing methods of breeding the white Amur and "tolstolobik" in ponds and natural reservoirs, and grey mullet in lagoons and freshwater reservoirs.

In the field of the technology of the catching and processing of fish, Soviet scientists will become acquainted with materials of the scientists from Communist China, North Vietnam, and North Korea on the trade and processing of anchovies, squid, cuttlefish, shellfish, and sea kale.

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

VIETNAMESE METEOROLOGICAL TEAM ARRIVES IN PEIPING -- Peiping, Jen-min Jih-pao, 19 Mar 63, p 4

A three-member meteorological delegation from North Vietnam, visiting China at the request of the Central Meteorological Bureau, arrived by train in Peiping on 18 March 1963. The delegation is led by Nguyen Xien, director of the North Vietnam Meteorology Bureau; the delegation was met at the station by Jao Hsing (7437/5281), acting director of the Central Meteorological Bureau, and deputy director Lu Wu (4151/6909).

CHINA GEOLOGY SOCIETY MEETS IN PEIPING -- Peiping, K'owun T'ung-pao, No 2, Feb 63, pp 66-67

The China Geology Society convened their Third Congress and 32d Annual Conference in Peiping 18-25 December 1962. Of over 700 of the papers presented 280 were read at the conference. Prof Li Ssu-kuang (2621/0934/0342), chairman of the Board of Directors of the China Geology Society, read a report to the congress on "Quaternary and Marine Deposits Along the Northwest Border of the North China Plain." Five special groups were then formed to read and discuss scientific papers. The topics covered in the special discussion groups included stratigraphy, structural geology, geochemistry, mines, coal field geology, hydrography, engineering geology, geomorphology, and quaternary geology. In addition, a special discussion of the role of geology in support of agriculture was held.

Peiping, Jen-min Jih-pao, 19 Mar 63, p 5

The Chinese Geology Society recently called its Third Congress and 32d Annual Conference to meet in Peiping. The conference was attended by 100 delegates from 26 of China's provinces, municipalities, and autonomous regions.

Ho Chang-kung (0149/7022/1562), Vice-Minister of Geology, delivered the opening address. At the close of the conference, a new board of directors was elected: Li Ssu-kuang (2621/0934/0342) was re-elected chairman.

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

BIOGRAPHIC INFORMATION

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

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- CHANG Yu-lung, Moscow Institute of Steel and Alloys, coauthor with S. F. Kuz'kin of article, "Apatite and Calcite Flotation Separation By Cation Collectors," in Russian. (Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 1, Jan-Feb 63, pp 42-47)
- CHANG Yueh-jen, Leningrad Polytechnic Institute imeni M. I. Kalinin, author of dissertation for the degree of Candidate of Technical Sciences, "Investigation of Vibrations During Cantilever Machining and Boring on a Lathe," in Russian. (Moscow, Stanki i Instrument, No 3, Mar 63, p 47)
- CH'EN Chung-hsiang, author of article, "Similar Solution of an Equation of Axisymmetric Nonstationary Two-Phase Flow Filtration," in Russian. (Moscow, Akademiya Nauk SSSR, Inzhenernyy Zhurnal, Vol 3, No 1, 28 Feb 63, pp 71-77)
- CH'EN Tieh-yu, Leningrad State University; coauthor with M. M. Shul'ts, A. I. Parfenov, T. G. Bondarenko, and Yu. Ya. Mekhryushev of article, "Electrode Properties of Glasses of the Oxide System  $\text{Li}_2\text{O} \cdot \text{Cs}_2\text{O} \cdot \text{La}_2\text{O}_3 \cdot \text{SiO}_2$ ," in Russian. (Leningrad, Vestnik Leningradskogo Universiteta, No 4, Seriya Fiziki i Khimii, No 1, 5 Mar 63, pp 155-160)

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CHENG Kuo-chang (6774/0948/4545)

CHAO Tseng-han (6392/1073/5060)

CHU I-t'ao (2612/4135/7118)

CHENG Jui-chen (6774/3843/3791)

All affiliated with Institute of Zoology, Chinese Academy of Sciences, Peiping; coauthors of article, "Preliminary Note on the Studies of the Lipofuscin in the Nerve Cells of the Rhesus Monkey," in English; received for publication 10 January 1963. (Peiping, Scientia Sinica, Vol 12, No 3, Mar 63, p 454)

CHENG Kuo-chang (6774/0948/4545)

FU Hsiang-ch'i (0265/3276/3823)

CH'EN Ta-yuan (7115/1129/0337)

All affiliated with Institute of Zoology, Chinese Academy of Sciences, Peiping; coauthors of article, "On the Vasculature of the Aortic Bodies in Birds," in English; received for publication 10 December 1962. (Peiping, Scientia Sinica, Vol 12, No 3, Mar 63, pp 339-345)

CHIANG Jung-ch'ing (5592/2837/1987)

TU YU-ts'ang (2629/7183/5547)

TSOU Ch'eng-lu (6760/2110/7627)

All affiliated with Institute of Biochemistry, Chinese Academy of Sciences, Shanghai; coauthors of article, "Further Increase in the Activity Regenerated in the Resynthesis of Insulin From Its Glycyl and Phenylalanyl Chains," in English. (Peiping, Scientia Sinica, Vol 12, No 3, Mar 63, pp 452-453)

CHIANG P'eng-ch'ei, Moscow Institute of Steel and Alloys; coauthor with G. Guglya, B. S. Bokshteyn, and A. A. Zhukhovitskiy of article, "On the Feasibility of the Muller Correlation For Reflection of  $\beta$  -Particles From Synthetic Mixtures," in Russian. (Moscow, Zavodskaya Laboratoriya, Vol 29, No 4, 2 Mar 63, pp 449-453)

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- CH'IAO Ch'i-ping, Institute of Labor Hygiene and Occupational Diseases, Academy of Medical Sciences USSR; author of dissertation for the scientific degree of Candidate of Medical Sciences, "Hygienic Appraisal of Aerosol Formed During the Welding of Chrome-Containing Electrodes," in Russian. (Moscow, Vechernyaya Moskva, 12 Mar 63, p 4)
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- CH'IU Wen-jen, Amoy State University, CPR, and Moscow State University; coauthor with V. A. Sveshnikov of article, "Rostraria -- A Larva of Notopygos sp. (Amphinomidae, Polychaeta) From the South China Sea," in Russian. (Moscow, Doklady Akademii Nauk SSSR, Vol 149, No 3, 21 Mar 63, pp 738-741)
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HSIEH Chia-jung (6200/1367/2837) Academy of Geological Sciences, Ministry of Geology; author of article, "A Study of the Tin Deposits in China," in English; received for publication 14 November 1961. (Peiping, Scientia Sinica, Vol 12, No 3, Mar 63, pp 373-390)

HSU Chi-feng, Institute of Oceanology, Academy of Sciences USSR; author of dissertation for the scientific degree of Candidate of Geographical Sciences, "Investigation of the Possibility of Applying Certain Theories of Ocean Waves for Coastal Zone Conditions," in Russian. (Moscow, Vechernyaya Moskva, 18 Mar 63, p 4)

HSU Chia-lung, Institute of Metallurgy imeni A. A. Baykov; author of dissertation for the degree of Candidate of Technical Sciences, "Investigation of Thermodynamic Interaction of Carbon and Oxygen in Melting Iron and Nickel," in Russian. (Moscow, Vechernyaya Moskva, 8 Mar 63, p 4)

HU Hai-ch'ang (5170/3189/2490) Institute of Mechanics, Chinese Academy of Sciences; author of article, "Stresses and Thermal Stresses in a Simply Supported Shallow Spherical Shell With Rectangular Base," in English. (Peiping, Scientia Sinica, Vol 12, No 3, Mar 63, pp 425-430)

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HU Kuo-ting, Moscow and Tientsin; author of article, "Measures in  $\sigma$ -Topological and Topological Spaces," in Russian; received for publication 25 March 1961. (Moscow, Matematicheskii Sbornik, No 3, Mar 63, pp 257-269)

HU Ning (5170/1380)  
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Both affiliated with Department of Physics, Peiping University; coauthors of article, "The S-Wave  $\pi$   $\pi$  Scattering," in English; received for publication 26 November 1962. (Peiping, Scientia Sinica, Vol 12, No 3, Mar 63, pp 317-326)

HUANG Fu-ch'ih, Moscow Engineering-Construction Institute imeni V. V. Kuybyshev, author of dissertation for the scientific degree of Candidate of Technical Sciences, "Investigation of the Coefficients of Moisture Transfer in Construction Materials With Radioactive Isotopes," in Russian. (Moscow, Vechernyaya Moskva, 8 Mar 63, p 4)

HUANG Ming-lung (7806/7686/7893)  
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CHIN Shan-wei (6855/0810/3555)  
CH'EN Yu-ch'un (7115/3022/5028)

All affiliated with Institute of Organic Chemistry, Chinese Academy of Sciences; coauthors of article, "A New Method To Introduce the 16  $\alpha$ -Methyl Group During Synthesis of Corticosteroid Bonding," in German; a preliminary report of this article appeared in Acta Chimica Sinica, Vol 27, No 1, 1961, pp 89-92. (Peiping, Scientia Sinica, Vol 11, No 12, Dec 62, pp 1659-1668)

JEN Kuo-tu, Leningrad Technological Institute; coauthor with L. S. Efros of article, "Intermediate Products and Dyes Containing Residue of Ethylenimine," in Russian. (Moscow-Leningrad, Akademiya Nauk SSSR, Zhurnal Obshchey Khimii, Vol 33, No 3, Mar 63, pp 966-969)

KUO Min-kao, coauthor with I. M. Barkalov, A. A. Berlin, and V. I. Gol-danskiy of article, "Kinetics of the Initiated Benzoyl Peroxide Polymerization of Phenylacetylene," in Russian. (Moscow, Vysokomolekulyarnyye Soyedineniya, Vol 5, No 3, Mar 63, pp 368-372)

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LI Ch'ang-mao, Moscow Geological Prospecting Institute, author of article, "Certain Results of Industrial Experiments of E-170/6 Electric Drills With No 8 Bit," in Russian. (Moscow, Razvedka i Okhrana Nedr, No 2, Feb 63, pp 19-25)

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LI Shi-lin, Kiev State University. author of article, "On a Criterion of Congruence, Analogous to  $\chi^2$  With Empirically Determined Parameters Available," in Ukrainian. (Kiev, Dopvidi Akademii Nauk Ukrainy RSR, No 2, 23 Feb 63, pp 161-164)

LIN Ch'un (2651/5028), Institute of Mathematics, Chinese Academy of Sciences; author of article, "Comparison Theorems for Difference-Differential Equations," in English; received for publication 18 November 1962. (Peiping, Scientia Sinica, Vol 12, No 3, Mar 63, p 449)

LIU Shun-fu, coauthor with N. A. Tolstoy of article, "Luminescence Kinetics of Chromium Luminophors  $G. \text{Al}_2\text{O}_3 \text{ Ga}_2\text{O}_3$  Cr System and Magnesium Spinel Activated by Chromium," in Russian. (Moscow, Akademiya Nauk SSSR, Optika i Spektroskopiya, Vol 14, No 3, Mar 63, pp 378-382)

MEN Hsiang-chen, Institute of Semiconductors, Academy of Sciences USSR; coauthor with A. G. Gurevich, S. S. Starobinets, A. P. Safant'yevskiy, "Investigating Ferromagnetic Resonance," in Russian. (Moscow, Pribory i Tekhnika Eksperimenta, No 1, Jan-Feb 63, pp 73-77)

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MU En-chih (4476/1869/0037), Institute of Geology and Palaeontology, Chinese Academy of Sciences; author of article, "Research in Graptolite Faunas of Chilianshan," in English; received for publication 6 November 1962. (Peiping, Scientia Sinica, Vol 12, No 3, Mar 63, pp 347-371)

NIU Ching-i (6873/4842/5030)  
KO Lin-chun (5514/7702/0193)  
CH'I Kuo-jung (4359/0948/2837)  
CH'EN Ch'iang-ch'ing (7115/1603/1987)  
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P'ENG An, Department of Analytical Chemistry, Moscow State University; coauthor with V. M. Peshkova of article, "Investigation of Complex-formation in the System Hafnium-Selenoacetylacetonate-Benzol  $H_2O$  by the Scattering Method," in Russian, (Ivanovo, Izvestiya Vysshikh Uchebnykh Zavedeniy, Khimiya i Khimicheskaya Tekhnologiya, Tekhnologiya, Vol 5, No 5, 18 Dec 62, pp 694-697)

SU Chao-ping (5685/5128/3056)  
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CHOU Kuang-chao (0719/0342/0664)

All affiliated with Peiping University; coauthors of article, "A Suggested Experiment To Determine the Spin of  $Y^*$  and the Parties of  $\Lambda - \Sigma \Lambda - Y^*$  and  $\Sigma - Y^*$  in English; received for publication 7 January 1963. (Peiping, Scientia Sinica, Vol 12, No 3, Mar 63, pp 451-452)

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TS'UI Ping-hsin, Institute of General and Inorganic Chemistry imeni N. S. Kurnakov, Academy of Sciences USSR and Moscow Electric Bulb Plant; coauthor with N. P. Luzhnaya and V. I. Konstantinov of article, "Investigation of the Triple Reciprocal System From Fluorides and Chlorides of Potassium and Tantalum," and "Solubility and Interaction of Phases in the System from  $Ta_2O_5$ , Fluorides and Chlorides of Potassium and Tantalum," in Russian. (Moscow, Zhurnal Neorganicheskoy Khimii, Vol 8, No 2, Feb 63, pp 389-395 and 396-402)

TUNG Lu-fen, Moscow Agricultural Academy imeni K. A. Timiryazev, author of dissertation for the degree of Candidate of Technical Sciences, "Compensation of Capacitive Currents in Rural High-Voltage Lines," in Russian. (Moscow, Vechernyaya Moskva, 1 Mar 63, p 4)

WAN Che-hsien (5502/0772/0341), Institute of Mathematics, Chinese Academy of Sciences

WANG Yang-hsien (3769/0111/6343), Hopei-Peiping Normal College  
Coauthors of article, "On the Automorphisms of Symplectic Groups Over a Field of Characteristic 2," in English; received for publication 8 October 1962. (Peiping, Scientia Sinica, Vol 12, No 3, Mar 63, pp 289, Mar 63, pp 289-315)

WANG Ming-fu, Department of Hydraulic Engineering and Melioration, Moscow Agricultural Academy imeni K. A. Timiryazeva; author of dissertation for the degree of Candidate of Technical Sciences, "Formation of Branches River Beds," in Russian. (Moscow, Vechernyaya Moskva, 6 Mar 63, p 4)

wang Ssu-chin, Moscow Geological Prospecting Institute; author of dissertation for the degree of Candidate of Geological-Mineralogical Sciences, "Methodological Bases for Engineering-Geological Research of Rock Foundations of High Dams (As Exemplified in Several Hydroelectric Power Plants On Rivers in Siberia and the Caucasus)," in Russian. (Moscow, Vechernyaya Moskva, 4 Mar 63, p 4)

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WANG T'ung-seng, Joint Institute of Nuclear Research; coauthor with S. M. Polikanov, Kh. Kekk, V. L. Mikheyev, Yu. Ts. Oganessian, A. A. Pleva, and B. V. Pefilov of article, "Formation of Nuclei With an Anomalous Spontaneous Fission Period in Reactions Involving Heavy Ions," in Russian. (Moscow, Akademiya Nauk SSSR, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 44, No 3, Mar 63, pp 804-807)

YANG Kuan-liang, Institute of Machine Studies, Moscow; author of dissertation for the degree of Candidate of Technical Sciences, "Investigation of Certain Mechanisms and Precision in Cylindrical Grinding," in Russian. (Moscow, Stanki i Instrument, No 3, Mar 63, p 48)

YEH Tu-cheng (5509/4648/2973)  
CH'EN Hsiung-shan (7115/7160/1472)

Both affiliated with the Institute of Geophysics and Meteorology, Chinese Academy of Sciences; coauthors of article, "On the Non-linear Effect in the Formation of Blocking High," in English; received for publication 23 August 1962. (Peiping, Scientia Sinica, Vol 12, No 3, Mar 63, 391-402)

YUAN K'ang, Institute of General and Inorganic Chemistry imeni N. S. Kurnakov and Leningrad Technological Institute; coauthor with A. A. Grinberg and O. N. Andrianova of article, "A Proof of the Configuration of the cis-trans-isomeric Compounds  $[PtCl_2(NH_3)_2]Cl_2$ ," [Note:  $Cl = NH_2CH_2COO-$ ] in Russian. (Moscow, Doklady Akademii Nauk SSSR, Vol 149, No 4, 1 Apr 63, pp 842-845)

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7 September 2004

Ms. Roberta Schoen  
Deputy Director for Operations  
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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