JPRS: 4810

28 July 1961

NEWS BRIEFS ON SCIENCE AND TECHNOLOGY IN COMMUNIST CHINA

Distributed by:

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

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

F O R E W O R D

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

JPRS: 4810

CSO: 1615-S,
1616-S,
etc.

NEWS BRIEFS ON SCIENCE AND TECHNOLOGY IN COMMUNIST CHINA

[The following are translations of selected articles from various issues of the Chinese Communist press]

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SUM UP THE EXPERIENCE OF THE MASSES - SEARCH FOR REGULARITY IN THE INCREASE OF RICE PRODUCTION

[Following is the translation of a news item in Kuang-ming Jih-pao, Peiping, 25 January 1961, page 1.]

Research personnel of the Chinese Academy of Agricultural Sciences based at Sung-chiang, Kiangsu Province, have made use of the method of combining research on collective farms with the research on "basic observation fields" to summarize their experience in increased productivity. In their labors over the past two years they have collected a set of technical procedures based on actual participation by local masses in the increased growth and production of rice. At present, researchers are making a systematic summary from the theoretical point of view to furnish scientific material to direct 1961's rice production.

These personnel, in the process of summing up the experience of the masses and in searching for the guiding principles of increasing rice production, and to conform to local production activities, have changed their methods of research. Where they had used small area comparative experiments they are now using the production teams' collectivized farms as the principal sites of research.

Since 1959, personnel based on the land of the five local production squads, a total of 800-odd mou of land, have instituted the on-the-field documentary system and a commune technical cadre department. Together with the farmers they have recorded germinating and pestilence conditions, stage by stage, in the collective farms. At the same time they have selected 20 different plots of model land in the collective farm to serve as "basic observation fields" so that they might systematically investigate the germination, growth, and physiological growth pattern of farm products.

They have also analytically surveyed conditions such as leaf area, stalk height, and the carbon-nitrogen metabolism of rice. Making use of these work methods the research personnel have taken command of a great deal of scientific research material obtained from actual participation in production. During the important stages in the growth and development of rice, they and the leaders of the communes together with technicians and farmers have held discussion sessions. Together they have studied and analyzed these

materials to look for the key to production problems. They have proposed suitable regulations for field control and expanded experimental activities. For instance, during the stage of replanting of rice-sprouts they investigated and found that they could plant over 400,000 sprouts to each mou. But when these finally tasseled there were only some 200,000, which meant a yield of about 50-60 percent of the sprouts replanted. In between there was a loss of less than one half, which greatly influenced rice production figures. The key question for which the masses urgently required a solution was how to increase the tasseling rate.

In order to solve this problem, the research fellows and cadre leaders of the production teams together with the farmers proceeded with wet-and-dry irrigation to conduct comparative experiments. The objective here was the protection of the sprouts and the increase of the yield. In this kind of work they were enthusiastically supported by the masses, so they were able to complete their assignment with smooth sailing. Based on this kind of research work the research workers published technical data. These were distributed by the pertinent units of the Shanghai Municipality to the people's communes in the various hsiens, so that the information might be used as reference material.

In the year or so just past, because the research personnel based at Sung-Chiang have been conscientiously participating in these on-the-spot studies and have summarized the experiences of the masses, they have obtained extensive results. In their observing and collecting of first hand information, they have entered into analyzing and reorganization work. They already have a relatively systematic understanding of the growth cycle of single-crop late-producing rice in the Sung-Chiang area. They have now preliminarily determined what at present is a suitable seed for local use. They have indications of what should be the level of control for farm work, suitable for reasonable mass action. That is, they know the basic number of sprouts per mou, the maximum number of replanted sprouts, the number of tassels, and the number of grains per tassels, and so on. In order to achieve these reasonable indications of high-production activity they have edited and published a set of in-the-field control regulations by consolidating their knowledge based on the masses' empirical experience of land fertilization and irrigation. They have also used the Three Black Three Yellow views of Ch'en Yung-kang (陳永康) knowledge concerning close planting with fertilizer and water. In this way they will achieve the agricultural industry's "eight-character constitution," based on active promotion and appropriate control. They will use these regulations to overcome the contradictions between rice-growing and nutritional growth, between individual growth and growth of the masses, between rice crop and soil environment.

The results of the research show that active promotion prior

to the peak of replanting is best one-shot procedure for increasing tasseling per mou. Research also shows that between the peak of replanting and prior to "pulling" is the time for controlling fertilizers and watering; this would prevent useless growth and increase nutritive accumulation. In the fields where there is plenty of fertilizers and where growth is prosperous, this is the time to use the dry and wet method of irrigation. It should be used so that the color of the leaves fades appropriately and conditions are favorable to the development of the stem, thus decreasing the sprout deaths and increasing the rate of tasseling. After "pulling," the fields should be treated with tassel-growing fertilizers and such procedures as field-baking and appropriate irrigation. Further promotion should be then accomplished, as this is effective in growing larger tassels, increasing the ratio of full kernels and the weight of each grain.

At present they are doing further research regarding control of promotion, in field control techniques of re-promotion, and planting processes. They are also studying the relationship of evidence in order to be better able to direct production and expand their research activity.

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CSO: 1615-S/1

ATLAS PUBLISHED FOR PEOPLE'S COMMUNE.

[Following is the translation of a news item in Kuang-ming Jih-pao, Peiping, 25 January 1961, page 2.]

The Geography Department of Kaifeng Normal College and the Honan Geographical Research Institute have jointly edited and published an atlas scaled to 1:35,000 for the Ch'i-li-ying People's Commune in the city of Hsin-hsiang. The atlas' contents include: land usage, land demarcation, distribution of production, material wealth distribution, commune industry, transportation and conveyances, and population maps. There are 23 such entries. These maps provide scientific data on the Ch'i-li-ying Commune and organization of its production teams in order that they might lead in production, establish limits of production and utilize regulations set forth for improvements over natural conditions.

10,418
CSO: 1615-S/2

A BASIC CLARIFICATION OF QUESTIONS CONCERNING FRY FLUCTUATION IN THE HSI-CHIANG RIVER

[Following is the translation of a news item in Kuang-ming Jih-pao, Peiping, 25 January 1961, page 2.]

The Marine Research Institute of Kwang tung, after three years of research and investigation, has definitely discovered the movements and habits of fry in the Hsi-chiang River. They have published Research on Quantitative Changes in Fish Fry in the Hsi-chiang a reference work of more than 100,000 words of value for both production and scientific research purposes.

The Hsi-chiang River is one of the principal sources of natural fish fry production. Annually it produces over ten billion black tench, tench, bream, and dace fry. Previously it produced enough not only to supply the fresh water breeding and culture needs of the provinces (and districts) of Kwangtung and Kwangsi, but also those of the neighboring provinces and overseas. The masses along the river have a long history and abundant experience in the catching and packaging of these fry. Although it is now possible to artificially incubate the bream, the tench, and the "ts'ao" (草魚) and not have to depend on catching natural fry, it is still quite meaningful to develop fry adequately and utilize those produced by nature.

Because of natural influences the range of fluctuation in the natural production of fish fry is great. One of the main problems posed for marine production research work is still that of the control of movement rhythms of fish fry and the accurate prediction of their quantity and projection dates. This is necessary for planned harvesting and increased production.

The Kwangtung Provincial Marine Products Research Institute started specialized investigations and research in 1957. After three years of effort accumulating data and analyzing the quantitative changes of fish fry in Hsi-chiang for the last ten years, they have found the basic reasons and patterns relating to these changes. The results show clearly that out of the four kinds of fish, the greatest change within a year is found in tench fry. Bream fry are the most stable. The relationship between the fry of "wan" [black tench] with those of the bream and the tench manifests a tendency toward simultaneous increase or decrease (when the first

kind increases the other two kinds decrease, and vice-versa). The relationship between the dace and these latter two types is compensatory (when dace fry increase, then the other two decrease). There is a definite relationship between the quantity and climate and wave conditions.

On the basis of these elements and the results of their experiments, they have published procedure principle and methods for forecasting fry quantities and, in addition, projections for effective harvesting and packaging. The productive potential of the Hsichiang fisheries is exceedingly great. A lot can be done in the direction of development and utilization if only appropriate steps are taken.

10,418
CSO: 1615-S/3

INNER MONGOLIA AGGRESSIVELY PUSHES WINTER HEALTH WORK, CONTROLS CERTAIN EPIDEMIC DISEASES

[Following is the translation of a news item in Kuang-ming Jih-pao, Peiping, 25 January 1961, page 2.]

January 24. The Inner Mongolian Autonomous Region has achieved results in pushing forth its winter health program of prevention and curing of diseases. Since the beginning of winter there has not been one case of certain diseases because the more infectious diseases in this self governing district, such as the "ke-shan" (克山) disease, influenza, and measles are now all under control.

Since the beginning of winter, they have organized over 12,000 medical personnel all over the district and have gone into the agricultural, grazing, mining, and labor areas to do winter disease preventive work. In the area where the "ke-shan" disease always has been concentrated, they selected 2,500 persons in the first line of production to begin preventive and curative work. Because of their wide-spread mobilization of the masses in extinguishing causes of diseases associated with closed-rank production and living, they instituted the "eight goods" program: good housing conditions, good water, good environmental health, good grain storage, good clothing, good foods and drink, good cultural living, good labor and rest. In this way they were able to effectively control these diseases and improve some of the conditions which did not comply to health rules. They were able to let the great majority of the mess halls have distilled water for drinking purposes.

In the Greater Khingan Mountain Range Forestry District the Anti-Pestilence and Disease Headquarters organized six preventive and examinational groups. They are sent into the grass roots to make check-ups and assist in furthering the winter disease preventive work.

In the Hao-li-pao Local Area the Medical and Nursing Personnel went into the residential areas to conduct an overall investigation and registration of children who are measles-prone. These children were then issued preventive prescriptions.

The City of Pao-T'ou established a Mass Health Supervisory Network, a Safety Checkup Network and an Emergency and Prevention Network. They gathered and trained a health staff. A great majority

of the city's nationally operated mess halls installed extra sanitary equipment. The city health departments supplemented the various levels of women's organizations to organize health propaganda movements. Together with labor unions they organized the 6,000-odd mess-cooks and mess hall supervisors to take part in a health training program. Over 750 mess halls established and fortified their sanitation systems, thus making health work a part of their daily routine.

10,418
CSO: 1615-S/4

ANIMAL HEALTH IN THE KIRIN AGRICULTURAL FRONT LINE

[Following is the translation of a news item in Jen-Min Jih-Pao, Peiping, 24 January 1961, page 4.]

Hsin-Hua News Agency, Chang-Chun, January 23 -- The Veterinarian Research Institute of the College of Agricultural Sciences in Kirin, basing its actions upon the consolidated demands of the cattle grazing industry of the province, has commenced research on the protection of work cattle and the prevention and treatment of cattle diseases.

In the past few months the Institute, basing its actions on the demands of the provincial party committee that the cattle be protected and allowed to survive the winter, has organized a group of research and technical personnel. They visit wide areas of the province and investigate diseases of cattle and fowls. They have started systematic research on a number of serious diseases detrimental to the health of these animals.

At the present time, most of the research has been completed and preliminary results are available. For instance, constipatory hernia is an all-too-prevalent disease among the horses and mules in Kirin. Previously there had been methods of treatment, but it was so complicated that they could not be fully utilized by the veterinary personnel. They have now discovered, through research, a highly efficient method of treatment. After trying it on over 130 horses they have achieved a rate of 97.8 percent recovery. The treatment is simple and can be handled by the average veterinarian.

The Institute also sent their organized personnel into the agricultural villages. They had them meet with technical personnel as well as the masses to conduct preventive and remedial work on the one hand and scientific research on the other. For instance, they sent personnel last year to the Shuang-kang Ranch, and did research together with the ranch personnel. They were able to control the incidence of the Taylor Round Worm Parasite (太勒原蟲) found in cattle. They discovered a method of treatment for cattle skin-maggot disease.

Recently, in order to recapitulate their efforts in protecting the cattle so that they will survice the winter, they also sent three high-ranking technicians to join the provincial cattle

industry inspection team. The team went to Pai-cheng, Chang-chun and the autonomous districts along the border of Korea to inspect and direct measures for the prevention and treatment of cattle diseases.

In order to meet the requirements for the development of production in the cattle industry, the Institute also formed training classes in terramycin usage, domestic animal parasite identification, hog-epidemic serum manufacture, and so on. They also sent personnel to teach at training classes organized by hsien and communes. At different times they helped to train over 220 persons in the various techniques of animal husbandry. They helped to strengthen the ranks of the anti-epidemic workers at the basic stratum.

The Institute also collaborated with various pertinent departments in collecting over 2,500 empirical prescriptions and paneceas from the masses. Out of this, they classified 680 which were effective against 99 kinds of animal diseases and published Selected People's Empirical Veterinary Prescriptions of Kirin Province. They also got the cooperation of Chinese and foreign-style veterinarians in publishing a book of 200,000 characters called Selected Bedside Experiences of Kirin Veterinarians.

10,418
CSO: 1616-S/1

REMEDIAL AND PREVENTIVE MEDICINE IN THE CANTON AND HAINAN AREAS

[Following is the translation of news items in Kuang-ming Jih-pao, Peiping, 6 February 1961, page 1.]

Teaching Medical Techniques to Health Personnel in Agricultural Villages

The Chung-shan Medical College in Canton, in manifesting the special characteristics of its profession, is forcefully supporting agriculture. In the past two years the college has sent out a constant stream of teachers and students to the countryside to teach medical techniques to the masses and to train health personnel for the farming villages. In this they have achieved noticeable results.

The college's assistance to agriculture is many-sided, the principal form of aid being close association with farm village production. Various means have been adopted to teach medical techniques to the masses and to assist local areas in the training of farm village health personnel.

Each year during the Spring Festival the College makes use of the one month agricultural slack period to organize teachers and fourth and fifth year students and send them into the villages. While partipating in labor for production they also develop work in disease prevention and treatment, and they take part in the training of village health workers.

During the past two years they were able not only to treat and prevent hook worm diseases, blood-sucking leeches, malaria, in most villages, but they also cured many acute epidemic cases and snatched from death many patients who were critically ill.

At the same time they trained over 130,000 persons for the Chan-chiang, Shan-t'ou, Chiang-men and Fo-shan Special Districts' People's Communes. These were trained in various training classes to be health personnel, child-health officers, midwives, nursing workers, and mess hall workers.

They took appropriate measures in this training and allotted over one month, three to five days, or half a month for the various courses. They adopted both the concentrated and the diversified schedules, that is on-the-job or afterhours instruction. They thus achieved a unity of the theoretical with the practical. At the same time they were learning, they were also doing. As they were doing they were raising the level of their knowledge.

For instance, there is the example of health classes. After they had learned about pestilence control and garbage disposal, they were organized into groups. These groups together with the teachers and students of the College, began immediately these kinds of activities. While they were practicing what they were learning, they had a helping hand at their elbow. The results of this method have been excellent. Those who have been trained in this manner are able to handle the 10-odd types of common diseases of the villages, and have larned to use over 30 types of medication.

The College also led and systematically send out bed-side teachers, who took the fifth year students alternately to train in the three hsiens of Ling-shan, Ta-pu, and Lui-chou. They organized the students to take part in the medical work at the hsien hospitals, so that the hospital medical staff and students could learn from each other, and develop themselves mutually.

When the teachers give bed-side lessons to the students and discuss case-histories, they try their best to encourage participation of hsien and commune personnel. Gradually this participation has increased the level of technical ability of the local staff. Aside from this, they have also helped the hsien's health schools to improve and fortify their teaching efforts. They have also aided the reorganization of teaching content and methods.

The College, responding to the needs of the outlying districts has ysstematically sent out groups of high-ranking medical personnel into the field to teach medical tehcniques. Last September they helped the professionals in the Shan-t'ou Special District with chest surgery. They held surgical procedure demonstrations, joint diagnostic sessions and seminars to teach diagnostic and remedial methods used in treating heart and lung diseases, tuberculosis and alimentary illnesses. They have laid a good foundation for future development of techniques in chest surgery in this district.

The College also adopted the "New for Old" and the Central and Field Assignment policies to raise the level of medical service in the farm villages. Since last year they have dispatched 13 medical cadres, including assistant professors, instructors, chief physicians and assistants with more than three years of service.

Hainan Island Malaria Incidence Shows Marked Decrease

Last year's malaria extinction program on Hainan Island has achieved favorable results. There has been a marked decrease in malaria cases. This means a further step has been taken for the protection of the health of the masses.

After several years of malaria extinction work, we are now able to control malaria on Hainan. To consolidate these results and in order to prevent a recurrence of this disease, the island is paying attention each year to the advancement of anti-malaria work.

In March, June and September of last year the entire island engaged in the Total Anti-Malaria Movement. The people of the island, in their

work, consolidated the procedures necessary in simultaneous treatment and prevention. In high-incidence areas they took steps to prevent recurrences and gave preventive medication to the residents. In low-incidence areas they concentrated efforts on complete inspection and treatment. They went ahead with mosquito extinction and mosquito prevention by residual spraying indoors with 6-6-6 wettable insecticides, and destroyed huge quantities of malarial mosquitoes. As a result, the malarial incidence of the entire island has decreased noticeably.

In the past few years very few of newly-arrived mainland citizens have developed malaria. Ch'iung-chung Hsien in the area of the minority races formerly had a high malarial incidence. After repeated malaria-extinction movements there has been a rapid decrease in malaria. In the various hsiens there have also been noticeable decreases in the malaria-source insect ratio.

10,418
CSO: 1633-S/1

DEVELOPMENTS AND ACHIEVEMENTS IN SEED DEVELOPMENT SCIENCE

[Following is a translation of an article by the Agricultural Crop Seed Development and Nurture Research Institute, Chinese Academy of Agricultural Sciences, in Kuang-Ming Jih-Pao, Peiping, 6 February 1961, page 2.]

Because of our tendency toward accurate scientific penetration applicable in production, the seed development work of this kind has attained noticeable results since the Liberation. Since 1958, illuminated by the brilliant general line, we have initiated a seed development mass movement. Not only have we been able to select many types of new and superior seeds, but we have made advances and promoted new ideas in the theory and methods of seed development.

(1) Seed Material and the Foundation for Seed Development

In order to proceed with seed development work we must have materials and data to work on. After the Liberation the Party and the Government placed extraordinary emphasis on this type of basic reconstruction. They adopted a systematic procedure to search for, organize, store and study, as well as utilize, premium seed material.

Up to the present the nation has collected the seeds of 53 different agricultural products from all over China. They are now in charge of safeguarding material to be used as seeds in agricultural products.

Having been utilized over wide areas, premium seeds of various districts have shown over-all superiority. We also have certain valuable seeds which manifest special characteristics under predetermined special conditions and manifest special superiority. There is, for instance, "March-browning wheat," famous for its early ripening quality "60-day return" summer corn, anti-drought and anti-flood Kao-liang from Hai-li-chan of Hopei Province. There is also deep water rice which can exist in deep water and which is known as the "Flower Hidden in the Leaves." In addition, there is short-fruit-stemmed cotton suitable for close planting, high oil content soya bean known as the "Small Golden Yellow," and Szechuan black-flowered potato. The latter is especially resistant to "late disease."

These products are either able to survive and produce in high and cold mountain regions and under adverse conditions or meet regional requirements of summer planting. In both cases, they are effective in increasing

production under general growing conditions. All of these products were carefully developed by the diligent and hard working farmers of our country, under different natural and historical conditions through methods of natural and artificial selection.

In the past 11 years in the process of selection and utilization of superior seeds the government has selected large quantities of rice, wheat, corn, millet seeds to be used in production expansion. This selection has been based on investigations and comparisons made by the masses and determined by research units. As for products such as minor grains, minor oil products and hemp, they are not basically suitable for seed development. The government has selected certain seeds best suited for a particular type of land and has pushed their production locally. In determining the proper seed models of local agricultural products and their distribution and history, the government compared them and passed judgment on them with different degrees of clarity, thus creating a set of regulations governing the source of premium seeds and the selection and breeding of seed types.

The result of transplanting were also greatly favorable. They were successful in transplanting Nan-ta 2419 wheat, ordinarily grown in the Yangtze Basin, for spring planting in the spring wheat areas. This transplanting is now being expanded to include the northwestern and southwestern spring wheat areas. The breeding seeds of the hardy northern rice, such as the China-Sun No 5, have been transplanted in the Yangtze Basin. The results are very good, and have manifested a high yield, cold resistance, and trample-proof characteristics of superiority.

When they transplanted the yellow hemp of the south in a place relatively to the north, they were able to raise fiber production both quantitatively and qualitatively. They interplanted between the various areas and increased the range and acreage of rice, cotton, winter wheat, multi-tasseled sorgham and yams. For instance, the area along Ho-hsi Corridor of Kansu was purely a spring wheat district; now they have succeeded in transplanting winter wheat and increasing production planting.

Aside from transplantation within the country, we have also brought in from Russia, Poland, Czechoslovia and 30 countries superior seeds for the selection and planting of rice, wheat, cotton and corn.

Another important project connected with breeding seeds is research in the determination and formation of special characteristics. After the Liberation they began relatively extended research into the periodic growth nature of principal agricultural products such as grains, cotton, oil, and hemp and especially with respect to wheat, rice and cotton. For instance, research proved that the spring regrowth period of autumn wheat gradually shortens; the need for low temperatures gradually decreases, the reaction towards sunlight gradually becomes sluggish from north to south. As a result, we have to pay attention to cold resistant properties when transplanting southern seeds in the north, and pay attention to the growth period when transplanting from the north to the south. These data are very meaningful in the accurate direction of transplanting and interplanting between the districts, as well as in the adoption of

of appropriate measures for selecting seeds according to their special characteristics.

Much work has been done in determining the disease resistance of the breeding seeds. For instance, with regards to the following diseases they have been able to determine and classify certain seeds which have developed resistance and immunity: the rice plague and the white-shrivelled-leaf sickness of rice; the rust disease, the red mildew disease and black tassel sickness of wheat; the seedling shrivelling disease and yellow-sere sickness of cotton, the late epidemic disease of the potato. These seeds have been given to the production authorities for utilization or kept for breeding purposes. Besides this, they have also done research on the growth patterns of wheat and soy beans. They have accumulated, as an initial step, data concerning the special characteristics of breeding seeds as related to the special conditions of the various localities.

(2) Cultivation of Superior Seeds and the Localization of Breeding Seeds

Accompanying the expansion of agricultural production, we have achieved good results developing superior seeds and selecting and raising new breeding seeds. In 1949 this occupied only 5/1000 part of the land under cultivation. During the past few years, because of the increase in judging, selection, transplanting and localized classification of superior seefs conducted by the masses in line with the guiding principles of "self multiplication, self selection, self storage, self utilization, assisted only by minute adjustment" various districts have established superior seed reproduction farms, seed specialization teams and seed breeding land. They then were able to rapidly expand acreage for superior seed breeding. For instance, during the initial period after the Liberation only a small quantity was planted of the Nan-t'e-hao Early Rice. This has now spread to the provinces of Hunan, Szechuan, Kiangsu, Chekiang, Anhui, Kiangsi, Fukien and Kwangtung. The total acreage planted reached 50-60 million mous. Generally speaking it yielded between 10-20% more than local breeds.

At the present time all agricultural research institutes, colleges, state farms and some of the people's communes have seed selection experimental districts. They are proceeding with comparative experimentation in breeding seeds and have as a first step instituted a seed selection network to develop work in the breeding of new seeds. They have created many new types of seeds for the principal types of agricultural products such as rice, wheat, cotton, millet, sorgham, yams, soy beans, peanuts, oil plant, tobacco and sugar cane. After discovering the localization nature of the seeds and determining their range of expansion and the efficacy of increased production notable results have been achieved.

At this point, it would do well to point out the recent extraordinary contributions by the farmer-breeders in their seed breeding efforts. For instance, Kung Wen-sheng (龔文生) of Hei-hsiang in Honan adopted the "multi-parent stock, free pollination" method. He used leaf pruning, tassel cutting and the directional cultivation by grain selection method to breed 57 grams of Nei-hsiang No 5 new wheat stock.

He thus increased production by more than 15% over the Nan-ta 2419 breed. It is now being demonstrated and promoted in the southern party of Honan.

Following the lessons of the farmer-breeders'"persuasion and demonstration" method, the agricultural workers have been able to clarify for themselves the difficult points of seed selection. They realize the importance of cultivating the large tassel (multi-tassel) large grain characteristics and know the value of extended utilization of botanical resources as seed breeding material.

In the past two years there has been a simultaneous mushrooming of ideas and methods for seed breeding. In accordance with local conditions and requirements, agricultural workers have adopted various methods for transplanting, selective planting, sexual and asexual pollination, near and far pollination, cultivation and mutation. They are pushing simultaneously several methods for the breeding of seeds with "quantity, speed, superiority and frugality." Many farmer-scientists are making use of people's communes because of their "first large, second public" (一大二公) nature. In communes they proceed with methods of "cultivation and selection, classification and comparison, reproduction and demonstration," in order to coordinate the various steps of cultivation and planting. They are joining the technicques of seed selection and seed breeding as well as using those of the high yield experimental fields in order to produce even faster seeds that are in demand. They then use these for production purposes.

(3) Seed Breeding and the Level of Theory

Accompanying the develcpments in seed breeding, there have been new developments in the theory and methods of seed breeding. Work in the breeding and pollination of wheat, corn and yams has indicated the possibility of overcoming problems of distance and differences in special characteristics as well as principal economic conditions which mutually compensate for cross-pollination. It is now possible to produce seeds which are a combination of the various characteristics. With care they adopted stocks some distance apart (the horse-teeth type and the hard grain type) and effected inter-pollination and self-pollination, giving rise to superiority in pollination.

They also achieved favorable results in shortening the breeding period and simplifying the breeding process. Research on corn has proved that if the alternate pollination method is used and self-pollination occurs on the same stem for two generations in a row double-pollination occurs. In this way production increases by 20% over seeds cross-pollinated from two different stocks. The period from the initiation of self-pollination to the yielding of the two-system pollination breed is only five planting seasons. This saves one half of the 10 to 13 years normally required. This method not only combines the superior characteristics of interstock pollination with those of self-pollinating stock, but also has the advantages of using a small range of materials and of having a clearer objective and an ease of control. It also reduces the chance of self-pollination and is easy to promote. It is certainly

a "high quantity, speedy, superior and frugal" method of cultivation.

In order to speed reproductive pollination, shorten the period of self-pollination and reduce the period of separation, many districts have experimented with alien-soil planting. For instance, in Liu-chou, Kwangsi, they have produced three generations of self-pollinated corn. Utilizing the difference in sea-level of the Yunan Plateau with different climate conditions, they were able to get three crops of spring wheat in a year and at the sam time achieve full-kernel products. In this way they could achieve second, third, and fourth generation separation stages of pollination in the same flower within the year. They experienced the entire process of self-pollination and separation with different-flower pollination.

In the future all that will be required is the selection individually at the original place of growth, of stock with stable inherited characteristics, either the cross-pollinated type or the self-pollinated type. Then all that will be required will be classification, comparison and establishment of single cross pollinated stock.

After the Liberation we also widely utilized grafting as a means of creating many new stocks. For instance long-fiber No 3 cotton stock, widely planted in our southern cotton area, was produced by the grafting of our mainland cotton with that of Hainan Island. The resulting cotton has the early-ripening large-yield characteristics of mainland cotton and the long fiber properties of Hainan cotton.

Since the Great Leap Forward, various districts have created methods of asexual pollination such as the young stem grafting method, the foetal emulsion injection method, the multi-foetal emulsion recombination method of grafting and the root-stem grafting method. All of these have been shown to be effective. Research has proved that the asexual cross-pollination method can overcome the difficult nature of peripheral sexual pollination and raise the fruit bearing ratio of the cross-pollinated descendants. It is effective in widening the range of cross-pollination. Because of this, it is best to combine the sexual and asexual methods when proceeding with peripheral cross-pollination for stock breeding.

With respect to directional cultivation, positive results have been achieved in directional research on winter-spring relationships, large kernels, wheat ramification and the early ripening and cold-resisting nature of cotton. Certain stock seeds of spring wheat after proper cultivation and selection, have been improved and become winter wheat models. By using correct fertilizing, weeding and short-sunning measures to change the relationship between growth and development during the tassel division period of ordinary wheat, it is possible to delay the development of the fruit bearing organs.

Many types of short stem cotton stock which have stalk shapes suitable for dense planting have been discovered by scientists, after several years of anti-cold tempering, trying to raise cold resistance and early ripening characteristics. This was achieved through sowing under early-spring low-temperature conditions and handling germinating cotton seeds at low temperatures.

Selection is the basic link in seed cultivation work. Overcoming selection problems permits accumulation and development of beneficial changes. The farmers of our nation long ago had individual methods of selection and raised selectively many types of stock seeds. The "green when ripe" type of late rice was selected by Ch'en Yung-k'ang (陳永康) through his "one-tassel bequeathal" method. After the Liberation and particularly since 1958, significant results have been obtained through through the widespread use of the simple and easy method of individual selection. Examples of these are "low feet" Nan-te from Nan-te-hao (南特号) rice; and Ya-p'eng (鴨棚) cotton from Tai-tzu (岱字) cotton No 15. In both cases yields have been raised from the yield of the original stock.

Group-selection is also an effective way of maintaining and improving the characteristics of seed stock. We can achieve good results with these methods when there is a tendency towards development of regression due to differences in direction of natural selection, fundamental botanical in nature. This is applicable when considering agricultural products whose basic inherited characteristics cause frequent recrossing in flowering and pollen dissemination. This is also the case for those products which have special economic characteristics.

In order to manifest the effects of proper selection, in recent years farmer-breeders have combined the creative nature of successive selection and individual breeding to prevent regression of rice stock. They have suggested the "six-selection" system to implement this: tassel selection, upper-section-of-tassel selection, kernel selection, seedling selection, replanted plant selection, selection during ripening season.

From the above simple discussion we can see that the nation's seed-production science has achieved great results in the 11 years since the Liberation. But we should not be satisfied because of this. In order to realize the "eight character constitution" of the farming industry and promote the unceasing development of farm production, we must continuously strengthen research work in seed breeding and more rapidly develop the science of seed cultivation. To do this we are offering our opinion for reference purposes with regards to problems of today's stock-seed industry and the seed cultivating science.

From the point of superior seed popularization, we need to take another step in establishing a wholesome system of propagation and reproduction. We must increase classification work of a local nature in order to overcome the mixbreeding now existing in certain districts and we must do away with one-crop conditions and stock-seed alteration.

With regards to the goals of seed cultivation we must, in addition to increased production, superior quality and anti-inferior properties, also pay attention to meeting the requirements of machinization, plant rotation and recultivation.

As for the method and theory of seed cultivation, we should broaden classification of the special nature and special characteristics of stock seeds. In the process of basic classification we should discover the external connection and internal relationship of the special character-

istics and the relation of these to natural and cultivation conditions. This will lead to effectiveness of cultivation and selection and to scientific predictability of seed cultivation work.

With regards to peripheral cross-pollination, we should emphasize and solve the problems of non-solidity of the descendants and the degree of solidity of the kernels. Besides this, we should search for more effective means of artificially changing the mutable characteristics. We must do more theoretical research in cross breeding and set up procedures for the maintenance of this superiority. We must improve ways and methods of managing breeding materials, so that they might better meet the requirements of mass movements.

Research on all these problems will be useful in simplifying procedures rejuvenating techniques shortening time consumption and increasing efficiency. We shall be able to "quantitatively, speedily, qualitatively and frugally" create new superior stock-seeds of agricultural products. Thus shall we be able to add even more to our nation's agricultural production and its agricultural science.

10,418
CSO: 1633-S/2

RESEARCH ON EARLY RICE SEEDLING CULTIVATION IN HUPEI

[Following is the translation of a news item in Kuang-ming Jih-pao, 22 February 1961, page 1.]

The Hupei Provincial Society of Scientific Technology convened a six-day seminar to discuss techniques of seedling cultivation for early rice and various problems found in the process of raising seedlings. The seminar was held so that the province could take the initiative in agricultural production and struggle for the best possible preparations necessary for a high grain yield.

At the seminar scientific workers argued about planting periods, the reasons for the rotting of the seedlings, the amount of seeds used and the density of planting, basing their arguments on accumulated data.

The 70-odd people attending the seminar included experts in the sciences of agriculture, meteorology, botany, and water conservation, as well as professors, young science workers, technological cadres from the rice producing districts of Hupei, labor heros and farmers. Yang Hsien-tung (楊顯東) Vice-Minister of the Agriculture and concurrently chairman of the National Agricultural Society, gave a report entitled "The Enlarged Farming Industry and the increased Production of Grains."

Voices were heard from all sides concerning technical questions; there was an interchange of knowledge based on experience in cultivation of early rice seedlings in Hupei. This was in line with the policy of allowing "one hundred flowers to bloom, one hundred schools to contend". Twenty papers and reports were received concerning the subject being discussed. These papers were written as a result of actual experience and supplied a great deal of material necessary for penetrating discussion at the seminar.

The problem of rotting seedlings was the one which caused the hottest arguments. All agreed that rotting was caused by the following reasons: (1) empty kernels (2) dead buds (3) dead seedlings. The causes of these three reasons are very complicated. Empty kernels are brought about by the bad quality of seeds or improper bud-forcing techniques.

Dead seedlings are due to the influence of temperature. The views on these two points were in relative agreement.

There are many reasons for dead buds, but as to whether the leading cause is due to low temperature or due to lack of oxygen, opinions differed. Some experts from the colleges, the professors, and some of the technical personnel believed that the principal cause is low temperature. But researchers and teachers from the Provincial Institute of Agricultural Research and Hua-chung Agricultural College believed that it is due to a lack of oxygen.

In their argumentation, each side used its knowledge of the initial temperature of rice growth, systematic development, physiological properties and farmer experience to back up its arguments. They said what they wanted to say and based their arguments on reason. A lesser number of comrades believed that, according to their observations, although the death of the buds was due to lack of oxygen, this lack was caused in turn by low temperatures. Labor Hero Li Shao-hua (李少華) felt that it is mainly due to freezing (low temperature) and to a lesser degree due to choking, but that death could be also due to immersion in the same water for several days.

After discussion in small groups and argumentation at the main conference, it was the unanimous belief that neither side carried the argument, because neither side had enough points in its favor. Further detailed and large-scale research and observation was required in order to achieve a satisfactory conclusion. Everyone believed that the search for an answer was very important, because production requires that necessary technological steps should be taken in order to stop this rotting. This is one of the key questions in the cultivation of early rice seedlings.

As to questions of increasing production by early planting, early ripening, the majority believed that both planting too early or too late are bad. Sowing too early causes the slow growth of seedlings and a longer life span of the seedling. It cannot achieve the goals called for and at the same time too many tares are produced. It is too hard to manage and leads to the rotting of seedlings. Sowing too late results in an insufficient growth period and causes decreased production. Therefore under fixed conditions only appropiate early planting can achieve our goal. Then we have to consider also the problem of the arrangements of labor power for wide-ranged production.

With regards to the determination of a standard temperature for sowing early rice, the majority believe that in the Hupei areas, when the temperature is stabilized at

the average of ten degrees centigrade, it is the right time for sowing early-Keng (粳) rice seeds. Eleven degrees was accepted as the proper temperature for sowing early-Hsien (籼) rice seeds. They also believe that the sprouting temperature should determine the sowing temperature standard.

After determining the standard sowing temperature, early planting arrangements can be made on the basis of the pattern of Hupei's spring cold curve.

The seminar also took into consideration the special characteristics of Hupei's agricultural production and weather forecasts for March and April. It also laid a stable foundation for seedling cultivation of early rice. The seminar determined the appropriate time for sowing, considered the weather and offered suggestions for bettering bud-forcing techniques. This led to a reinforcing of management of the fields and of seed quality.

The seminar was one in which all sides had their say. It was also a learning session, one for the interchange of experience. The seminar collected the questions and problems raised, the various points of view, the important suggestions regarding seedling culture and published an "Outline of the Seminar." This they will turn over to the production authorities for reference. In accordance with the spirit of "finding the mutually agreeable but keeping the points in which people differ, the opinions of the majority and the minority, as well as individual opinions, have all been put in this outline.

All the participants believed that in this year's seedling cultivation we should fight a war which we can handle. In order to do this, we should carefully combine our learning with the abundant experience of the labor heroes and seek technological advancement with practicality.

The outline not only has to absorb the opinions of the experts and hsien technical cadres, but must also recognize the suggestions, obtained through the procedures of the seminar, of the model workers and farmers concerning this cultivation. In this way the outline will not only reflect the various arguments of the scientists, but will also bring out the techniques that adhere closely to practical production. This will make it more acceptable to the masses and more advantageous to production.

During the conference the Central China Agricultural College and the Provincial Agricultural Research Institute outlined problems for scientific research, basing their action on the problems discussed and determined at this seminar. The Hupei Agricultural Society also discussed and determined jointly with the various participating units

urgent procedures and technical steps that have to be taken as a first step. They decided to organize jointly in the near future a service corps to deal with rice seedling cultivation. This corps will visit Ching-chou, Huang-kang, and Wuhan, three important rice production districts, and penetrate the front line of production. It will experiment together with model labor and the old farmers.

10,418
CSO: 1695-S/1

KWEICHOW ADOPTS BUD-PLANTING OF POTATOES

[Following is the translation of a news item in Kuang-ming Jih-pao, 22 February 1961, page 2.]

Various districts in Kweichow have adopted bud planting and divided-stalk planting of potatoes in order to conserve seeds for spring planting. According to spot checks in the various areas, bud-planting saves about 100 kilos per mou more than tuber-planting.

Spring potatoes are one of the principal early-ripening products of Kueichow. In a large majority of the places they have been used in tuber-planting and have wasted a lot of seeds. After repeated localized experiments, it has been determined that the new methods of planting are progressive ones.

The pu-yi (布依) and Miao (苗) Scientific Research Institute in the southern part of the autonomous chou of these peoples in Kweichow has observed the results of two years planting and has proved that the advantages of these methods are as outlined below.

First, they conserve seeds. From each seed potato two or even five to six buds can be broken off and planted. After the buds had been planted the original seed potato can be used again for the same purpose.

Second, they yield a higher rate of production. This is because bud-planging is suitable for reasonably crowded planting and the fact that the roots entering the earth are longer. In addition, the germination prior to the planting can be completed at an earlier time. As a result, transplanting and growth of seedling is earlier. The yield is higher and the potatoes are larger. The yield from one mou is about 200-odd kilos more than tuber-planting.

Thirdly, by the use of these methods we can avoid ar prevent the high incidence of late-pestilent diseases, as in the case of tuber-planting. The divided-stalk method involves the breaking off of the stronger stalks from tuber-planted potato plants and transplanting them. Besides having the advantages of bud-planting, it further has the

advantage of saving the labor involved in the forced-growth of buds in the anti-frost processes. After transplanting, the ratio of growing plants is also increased.

In order to promote planting through these two methods the districts are generally planning to select seeds to meet local requirements. They are using all their efforts in germinating strong buds, both through natural growth and artificial force-growth. Those areas selecting the divided stalk method have already prepared the necessary sandy land and are ready to start.

10,418
CSO: 1695-S/2

ADOPTION OF SINICIZED PRONUNCIATION ALPHABET

[Following is the translation of an article by Hsia Chien-pai (夏堅白) President of Wuhan Survey and Cartography College, in Kuang-ming Jih-pao, 22 February 1961, page 4.]

To say that pronouncing names according to the English alphabet is the internationally accepted way is not facing the actual truth. There has been a lot of discussion on this, and truth is victorious over arguments. No more needs to be said on it. As to whether we should use the sinicized alphabet to pronounce names, I believe, the answer should be a positive "yes." This is because sinicized alphabet pronunciation is our way of pronouncing words. Using this alphabet to take care of the sings and symbols and pronouncing them according to the Chinese way in Chinese speech is natural. In this way, not only the pronouncing method will be unified, but all 650 million people in reading books, reading newspapers, and listening to various kinds of reports will be given convenience.

As to the relatively older intelligentia, I do not think there will be much difficulty. After the liberation, many comrades in the fields of scholarship, health, science and technology were able to master the relatively difficult language of Russian in a short time. Therefore there is reason to believe it will be just as easy to master the pronunciation of the sinicized alphabet rapidly. To worry about this point, in fact to worry for the minority and not to consider the needs of the majority, I believe is without basis and is not according to reason.

The problem I am raising is how to go about adopting this method immediately. This is because, as things stand at present, there is much confusion. The situation is disadvantageous to the spreading of scholarship, health and scientific-technological knowledge.

Take for instance the situation in high schools. Because the teachers did not study the same foreign language, when they teach they would use their own systems of pronunciation.

As a result, students hear English, French or German pronunciation. As far as the students are concerned this is a big headache and there is plenty of confusion because the students have not learned that many foreign languages. Since no official method of pronunciation has been set up, when pronouncing words, a person naturally uses the foreign language he is familiar with. Thus, a teacher who has studied Russian uses Russian pronunciation. Those who have studied English, French or German use these languages to pronounce words. There are still others that pay no attention to what language the original material is, although the book may have Russian words or the words from other languages in it.

Today we are prepared to eliminate all this confusion. Actually we should speedily remedy the situation. I suggest that we officially declare that we are to use the sinicized alphabet to pronounce everything. There are three advantages to this: the first is convenience, the second is unification, the third is the facilitation of the spread of scientific knowledge.

Under the glorious leadership of Mao Tse-tung's ideological leadership in the eleven years after liberation, the educationalist, under the guidance of the Party, has purged from our society the residue of imperialistic cultural invasion. We should immediately adopt the sinicized alphabetic pronunciation for scientific signs and symbols. It is a link in the chain of the linguistic system that we cannot do without. This is a must for a gloriously independent and self-determining nation. At the beginning of its use there might be some inconvenience. But if we consider the welfare of 650 million people, the inconvenience is infinitesimal and is nothing to speak of.

Before its official adoption, there are some concrete problems which have to be considered from all sides. These are the pronunciation of certain nouns, regulations for abbreviations and changes in old nouns. These questions have already been discussed in Script Reform, and need to be discussed by relevant scientific institutes. The Chinese Language Improvement Society, the National Science Committee, the Ministry of Education and the Academia Sinica should lead everybody in the discussion of principles and methods. Later on, the various special committees and institutes should establish concrete changes so that we might have a complete set of rules on how to pronounce symbols and how to abbreviate.

In the past three years, the educational field, as well as those of health and scientific-technology, have

made great leaps forward in this regard. I am of the belief that if we succeed in this, it will lead to even greater progress and will certainly help us to our goal. I hope that in 1961 we will be able to solve the problem which is so vitally concerned with all the people's education, the solution of which will raise the level of culture and scientific and technological knowledge.

10,418
CSO: 1695-S/4a

SINICIZED PRONUNCIATION OF MECHANICAL DRAWING SYMBOLS

[Following is the translation of an article by Yin Yung-nien (尹永年) of the Agricultural Mechanization Department of the Nanking Agricultural College, in Kuang-ming Jih-pao, 22 February 1961, page 4.]

In the drafting of mechanical drawings, government standards provide for the use of the sinicized alphabet to express the symbols therein. However, our teachers are still using the English system to pronounce them. As a result there has been a lack of unity between the pronunciation and the meaning expressed. Take for instance "Kuo" (國), which has a "g" as an initial in the sinicized alphabet, and the word "piao" (標), which should have a "b" for an initial. When taken together "gb" should signify "Government Standards." However, when the teacher pronounces it in English, it loses its meaning entirely.

Another instance is in the chapter on "the Interchangeability of Machine Parts." Government standards provide for the use of the symbol "j" to signify "static supplementation" (静配合), "d" for "dynamic supplementation" (動配合) and "g" for "transient supplementation" (過渡配合). Obviously in all of these, they are to use the first initial of the sinicized pronunciation to represent the entire technical term in order to make it more convenient for the students to memoriae. If the teacher uses the English pronunciation, it creates difficulties for the students in their memorization.

The teachers on the one hand are reading the sinicized alphabet as it appears in the texts provided by government, but on the other hand they are pronouncing the same symbols in English. As a result, the students are under the impression that the sinicized pronunciation is the same as the English pronunciation (these students never having studied the sinicized alphabet). The existence of this situation among college students is to be deplored.

10,418
CSO: 1695-S/4b

THE PRONUNCIATION OF SCIENTIFIC SYMBOLS ACCORDING TO THE LATIN ALPHABET

[Following is the translation of an article by Yun Tze-ch'iang (惲子強), Assistant-chief of the Mathematics, Physics and Chemistry Department, Academia Sinica, in Kuang-ming Jih-pao, 22 February 1961, page 4.]

Through international usage scientific symbols usually are either Latin or Greek characters. Some of our comrades have already pointed out that although in many countries they use the Latin alphabet, the way of pronouncing these symbols is different in each country. In the past, our country has been pronouncing in English that portion which resembles the English alphabet. At present the form of the alphabet is entirely like that of English; but the pronunciation, in order to suit the requirements of sinification, is somewhat different. Because of the gradual introduction of our own system of pronunciation, there are many differences that have developed between the two.

How are we then to resolve these differences? The pronunciation of a language or of symbols must meet the requirements of mutual conversation. Therefore the pronunciation of the scientific symbols should coincide with that of the language. The main thing is how easy it is for two parties to communicate with each other, reducing the burden of the conversers. As to a teacher's teaching or lecturing, it should be the same.

Take for instance the pronunciation of the written language. The same Chinese characters when spoken by people from different dialect areas are pronounced differently. Then how can these people converse with one another? Very obviously, if a man from Shanghai who understands Cantonese goes to Canton and wants to converse with a Cantonese who doesn't understand the Shanghai dialect, he must talk in the Cantonese dialect in order to be easily understood. If however, the Cantonese also understands the Shanghai dialect and the man from Shanghai talks in the Shanghai dialect, it is not very difficult for the two sides to converse.

If the man from Shanghai only understands the Shanghai dialect and the Cantonese only understands Cantonese, then it would be pretty difficult for both parties. They would not be able to use pronunciation of the written language or their respective dialects to solve the problem. Their only way out would be to use the written language (which is pronounced differently by both) to converse by writing.

The difficulties encountered in these different pronunciations of the Chinese language is known to everybody. Before the unification of the pronunciation system the so-called "reasonable solution" depended upon the concrete requirements of the two conversers. Now that we have an alphabet to be used for pronunciations purposes, as soon as the actual unification is enforced the problems of Chinese character pronunciation will be entirely solved. Before the realization of unification, the only way for people who don't know the sinicized alphabet is to use their own dialect to converse with others. In the meantime, we have already mentioned the way of conversing with one another in order to reduce the burdens of the conversers. There is no way out, but fortunately it is only a temporary step which cannot be avoided.

As to how we are to resolve the differences in the pronunciation of scientific symbols, I believe we should consider the actual conditions encountered by the conversers at the time. For those who have already mastered the sinicized pronunciation, but who do not understand the English pronunciation, we cannot but use the sinicized system to converse with them. As to the occasions when both parties only know the traditional ways to pronounce these symbols, whether in English or some other language, we should allow the temporary use of a way of pronunciation that is known to both parties in order to reduce the burdens of understanding.

In teaching the teacher should adapt his pronunciation to the requirements of the majority of the students. Towards students who only understand the sinicized system, the teacher should use that system and to the majority who understands pronunciation, the teacher should use only the English system. This is only reasonable.

As to the teacher himself, since he is a teaching tool, it is not too much to ask that he learn an extra 26 characters in order to facilitate his teaching of both kinds of students. Such extra work is slight exertion for the teacher who should maintain and nourish the development of his teaching tools to fit himself to his environment.

In the process of developing the sinicized alphabet

system as a tool for unifying the pronunciation of Chinese characters, we envision the gradual increase of the number of Chinese who can use the alphabet to pronounce words and the gradual decrease of the number of people who use the English pronunciation. The only course to follow for the pronunciation of scientific symbols is that of the sinicized system. But we should not, just because of this, insist that the people on the two sides of the conversation, who both habitually use English pronunciation, change to the sinicized system, which they both are not accustomed to.

"X-ray", according to the English system of pronunciation, would be pronounced as "ai-ko-ssu-kuang (愛克斯光). According to the sinicized pronunciation it would be "hsi-kuang" (希光). The Russians do not call it "X-ray," but use the name of the discoverer and call it "lun-chin-she-hsien," which also appears in some of our textbooks. Therefore, this term "x-ray," whether we write it or pronounce it, is not an international convention, but only a general habit of our people. Therefore with the gradual increase of people who know the sinicized pronunciation there will be a corresponding decrease in the people who use the English system. If we still habitually write "X-ray" there will gradually be more people who will pronounce it as "hsi-kuang" and less people who read it as "ai-ke-sze-kuang."

Such was the case of NH_4. At first we used to call it "ya" (氨), then we went through a period when we called it both "ya" and "an" (氨). Finally we got to the stage of unification when we all called it "an".

Also in the case of Gm [gram], we were calling it either "k'o-lan-mu" (格蘭姆), "k'o" (克) or "kung-fen" (公分). Finally we reached the unified form of "k'o" alone. The burden we have to bear is a light one and a temporary one. In the process of utilization by the vast majority, unification will be effected in the not too distant future.

10,418
CSO: 1695-S/5a

LETTERS FROM SCIENTISTS DISCUSS THE LATIN ALPHABET

[Following is the translation of a feature section appearing in the Kuang-ming Jih-pao, 22 February 1961, page 4.]

Editor's note--when we instituted discussion in these pages on the pronunciation of the latinized alphabet in mathematics, physics and chemistry, we requested the opinions of some scientists. Besides printing comments by some of these scientists, we have recieved further letters. These we are printing in this section chronologically, according to date of receipt.

Letter from Ch'ien Hsueh-shen (錢學森), Chief of Institute of Research on Dynamics, Academia Sinica-- with regards to the problem of the pronunciation of the latinized alphabet when used as scientific symbols, I wish to express my point of view: I believe that it would be best to change to the sinicized method of pronunciation.

Letter from Hsiao T'ien-to (蕭天鐸), Research Fellow, Graduate College of Water Conservation and Hydro-electric Power--I am entirely in favor of using our country's own sinicized system of pronunciation for latinized alphabet characters. Since we already have the system and our own way of pronunciation, we should no longer use English pronunciation. This method is convenient, reasonable, and is consistant with common usage in all countries. There is no difficulty involved.

Letter from Su Lu-p'ing (蘇魯平), Mathematics Research Institute of the Academia Sinica--I was most happy to read the last two issues of your "Script Reform" feature. I raised both of my hands to say I believe in the sinicized pronunciation of the latinized alphabet. I also hope that action on this will start very soon. There is however, one concrete difficulty. That is, there are many persons who have had much contact with latinized pronunciation, but who have never

studied the sinicized alphabet. As I understand it, this kind of person in scientific institutions and higher educational organizations is not in a minority. We can say that these places are the weak links for promotion of the system. It is urgent that a way be found to assist them. But studying voicing and pronunciation by oneself is not an easy thing, nor is it accurate. It is very difficult to find the necessary teachers or to organize classes in these organizations. I have thought of a solution. I suggest that Peiping Television start programs for the promotion of sinicized alphabet pronunciation, just as the radio stations are doing with their programs for teaching new songs. This would teach pronunciation to the viewers. The great majority of the institutions have television sets, so this would be a most convenient method. The program should be scheduled for the evenings because most of them already know their ABC's and since there is no need to take notes, no lights would be required. It would be good to promote this suggestion so widely so that other cities can consider adopting it.

Letter from Wu Yu-hsun (吳有訓), Vice-President of Academia Sinica and Concurrently Chief of the Mathematics, Physics and Chemistry Department--With regards to the subject under discussion, my opinion is the same as that of many others. I agree that we should pronounce according to the sinicized system. To say that the English pronunciation is an international convention definitely has no basis. No reason or necessity can be found. I can definitely say thaa we can make it work, and that it will be easy both to say them and to hear them.

Joint Letter from Ch'ien San-ch'iang (錢三強), Vice-Secretary of Academia Sinica and Concurrently Chief of the Atomic Energy Research Institute and Ho Tse-hui (何澤慧), a research fellow from the same institute--Seeing so much enthusiastic discussion on this problem, we want to say we agree fundamentally with these opinions and believe that weshhould pronounce according to the system promulgated by the government. Previously we did not have a unified system of pronunciation, therefore each person pronounced in his own way, based on circumstances dictated by historical conditions. As a result, a confusing situation was created where people were pronouncing according to English, Russian or German. Since we now have a unified system, we should stubbornly insist on reading scientific symbols in this way. Those who are used to other systems should change habits created by historical conditions. This kind of person is

definitely in the minority. In order to develop the long range advantages of science, we believe that the earlier we adopt the sinicized system of pronunciation, the better it will be.

Letter from Chao Chung-yao (趙忠堯), Vice-Chief of Atomic Energy Research Institute, Academia Sinica--With regards to this problem, I had to go back and consult the January 12th and 26th issues of Kuang-ming Jih-pao where it was under discussion. I believe that it is reasonable to adopt the sinicized system. There are relatively more people who support it. The adoption of the system is suitable to the demands of the situation. Since I do not have creative suggestions, I am not putting them forth in an article.

10,418
CSO: 1695-S/5b

OVER-ALL EXPLORING RESOURCES IN TAI HU [TAI LAKE]; COMPREHENSIVE TEAM ORGANIZED BY NANKING GEOGRAPHICAL INSTITUTE

[Following is the translation of an article in Ta Kung Pao, Peiping, 21 February 1961, page 2.]

The Nanking Geographical Institute, under the Kiangsu Province Branch of the Academia Sinica, cooperating with other related units and colleges, has organized a comprehensive exploring team comprising more than 80 persons in various fields such as geographical, geological, hydrological, meteorological, marine biological, and the like, to carry on an over-all investigation and research task over the resources in Tai Hu.

After half a year's field investigation and indoor research, the comprehensive exploring team has already had an initial grip on the whirling pattern of those special varieties of fish in Tai Hu such as yin-yu [salanx], mei-chi [coilia nasus], lien-yu [hypophthalmichthys moritrix], and tsuo-yu [euneopterygius tusitalo], thereby providing certain advantageous conditions for fishing in the future as well as for study of their habits of laying eggs. They also discovered that there was a considerable quantity of aquatic living beings, mud and turf in Tai Hu, which, with their content of various kinds of manure ingredients, might have greater effect on improving the nature of soil and on preserving its fertility. From their research data it was learned that among those algae in Tai Hu were siphonales, which contained a high percentage of nitrogen which, if cultured, might be transformed into solid nitrogen fertilizer.

The team has also initially investigated the distribution of isles and hidden rocks in Tai Hu as well as the formation of the lake. Following the exploration, they have suggested for reference certain related departments and initial programs for the development of resources in Tai Hu.

10,415
CSO: 1696-S/5

TECHNICAL PROBLEMS IN WHEAT FIELD IRRIGATION

/Following is a translation of an article in Kuang-Ming Jih-Pao, Peiping, 28 February 1961, page 1./

Recently the Honan Agricultural Science College invited the Provincial Agricultural Department, Water Conservancy Department Meteorological Bureau, and farmers from the nearby communes to take part in a symposium on anti-drought techniques to discuss and study techniques for spring irrigation, anti-drought, and embankment protection of wheat fields.

The symposium first analyzed present drought conditions based on meteorological data and on-the-spot investigations. They saw that from last November to this January there had been less rainfall than usual. The special characteristics of present weather conditions are dryness of the atmosphere and relatively rapid evaporation of the water content of the soil.

The "rainy season" has just passed, the temperature is rising, and the wheat has just turned green again. This is a key period of time in which wheat requires water. Therefore we must grasp the timeliness of the situation and proceed with irrigation, plowing, protection of the embankments, and management work. This will be beneficial both to the wheat growth and the fall harvesting.

Technical problems concerned with effective irrigation and economical use of water related to special conditions of the locality were conscientiously discussed at the symposium.

Farmer Tu Shu-t'ai (杜書太) of the Tu-ling Brigade in the Chin-shui Commune said, "At present the winds are dry, there is no dew at night, and we lack things to hold the water. The best thing to do is water and harrow the earth more frequently. It will not do not to harrow because without loose soil there would be more seepage of water. The wheat has not raised its head yet and is not afraid of water. A temporary flooding would do no harm."

Old workman Shih Ching-t'ien (石經田) of the experimental station attached to the College analyzed conditions in the Huai-nan area. He said, "Formerly they did not irrigate there because of pumping and drainage problems. But in dry years they also require irrigation. It is good for sandy land. Sticky soil, however, requires immediate plowing after irrigation to prevent caking and cracking."

Technician Li Yung-k'ang (李永康), who belongs to the Earth Fertilizer Department of the College, brought up problems concerning the

prevention of salination and alkalization of the soil in districts irrigated by ditches. Based on experiments in the areas irrigated by the Yellow River, where the subterranean water level is about 1.5 meters, the watering should never be more than 30 to 40 cubic meters. If more water were used, the subterranean water level would rise and cause saline saturation of the soil. The proper watering of the land would conserve water and prevent salination as well.

Aside from this, based upon the experience of western Honan farmers, it was determined that pit treatment or row treatment of the land with a mixture of water, night soil, and urine would not only increase production but also be effective in protecting the water holding capacity and in reducing evaporation.

The participants were unanimous in their belief that in managing wheat fields under drought conditions it is necessary to grasp the time element in irrigation and also necessary to proceed in early plowing and tamping to reduce evaporation.

From previous research data it was found that harrowed land in the middle of February loses only 1.2 percent of the moisture in 10 to 20 millimeters of soil, whereas land that has not been harrowed loses 8.3 percent. There is also better wheat production in the former case.

Farmer Chang Ch'ing-shan (張清山), who belongs to the Ma-lin Brigade in the suburbs of Cheng-chou, brought up the question of wheat fields that do not have irrigation facilities. He said that we must plow the land and weed it very often. The weeds compete with the seedlings for water and fertilizers. We must not overlook the fact that weeds interfere with the growth of wheat.

The symposium made a detailed study of embankment protection problems on spring land. Everybody believed that since there is only a month left until spring sowing, it was impossible to consider all methods of water storage in order to avoid or reduce loss of soil moisture, since this is the key question in guaranteeing punctual spring sowing.

Because of this, we must immediately harrow the spring land that was plowed over last winter, break up the clods, smooth the land surface, and reduce evaporation of the moisture content. Land that was not winter plowed should be spring plowed immediately and fertilized. It should be tilled as it is harrowed.

In guaranteeing the irrigation of spring wheat land, we must also enlarge its acreage. The agronomy instructor of the College, Wu Chung-tao (吳中道), introduced the experience of the past few years in their experiments at the station. He believes that furrow watering is most efficient. It saves water and accomplishes better and evener watering. The techniques involved are easy to manage. Upon completing the watering, the dirt has to be smoothed out in order to conserve the moisture.

Based upon present conditions, the symposium, at its closing session, called upon the scientific research organs of the various levels in the province to organize their technical personnel and go to the villages in order to proceed with investigative research. They must adjust

their work to the conditions of the locality in order to summarize and propagate the experience of the masses in anti-drought irrigation techniques.

They must also go ahead with experiments in related subjects of embankment protection, sowing, and seedling protection. They must accumulate scientific data to work toward a relatively good harvest this year.

10,418
CSO: 1728-S/1

PROPER MANAGEMENT OF LABORATORIES IN INSTITUTIONS OF HIGHER LEARNING

[Following is a translation of an article in Kuang-Ming Jih-Pao, Peiping, 27 February 1961, page 1.]

Our correspondent, Peng Ying-lu (彭應祿), reports that the Mining Machine Laboratory of the Peiping College of Mining Industries is one where they have many new mining machines, many precision measuring instruments, and a variety of teaching models. Each year over 10,000 nen travel to this laboratory to take part in teaching demonstrations and research work in related scientific subjects.

Because the laboratory personnel, under the constant guidance of the Party, realize the importance of the laboratory in the solidification of classroom teaching results and raising the quality of teaching, they are paying a great deal of attention to the repair and maintenance of machinery and equipment. They are adhering strictly to their control system. As a result, in the last four or five years, they have not damaged any machinery or measuring instruments. They have never lost anything important, nor have they been responsible for any breaches in the safety measures. This has assured the smooth running of teaching demonstrations.

Recently I visited this laboratory in order to find out what their work experience has been. As soon as I entered the laboratory the machinery and model exhibits gave me a feeling of freshness. There was still the fresh aroma of new paint in the wide, bright and neat room. The many mining machines and detailed models were neatly displayed. Colored pictures and structural diagrams on the walls were clearly and accurately drawn. In the south-west corner a switch panel was displayed. This was surrounded by a safety enclosure.

On the east side of the room a class of students was grouped around a seven or eight ton composite coal mining machine and was being given a demonstration. The assistant chief of the Machinery Department, Kao Jung (高榮), said to me by way of introduction, "All these machines and movable models are sued for practicle demonstrations and actual operation by the students." He also told me, "Besides machinery that was imported we also collect the cast-off machinery from the mines. Using spare parts, the laboratory staff repair and recondition them." As he was talking he also pointed out various other items to me. The ten odd movable models in this lab, such as the model of the upright

pit quarrying machine, were all made by the hands of the laboratory personel.

After further explanation I realized that there were only four members on their staff. Aside from the chief, who also serves on the teaching staff, there are only two experimentalists (one of whom had only recently arrived), plus a technician. Because they were able to achieve remarkable results in the construction of the laboratory and in machine and equipment maintenance, one of the experimenters and the technician were designated as "progressive workers" in 1959. The laboratory was also adjudged as a "red banner" unit.

On the opposite side of the display room there is a small workshop. Inside this room there are two lathes and a tool stand. This room was set up particularly for the purpose of repair and maintenance of the equipment. In the workshop I met the technician, Wang Tu-min (王篤民), who was making a detailed and movable model of a "stride" type (蹅步式 [sic]) electric shovel by hand. This technician, who is only 25 years of age, was an apprentice at a privately owned electric factory. He never went beyond the first grade in his schooling. In 1953 he came to this laboratory when it had only one coal mining machine. He has grown up with the laboratory under the tutelage and nurture of the Party. Not only has he been able to learn about the maintenance of all coal mining equipment, but he can read all books related to this equipment. He is also able to make fine models of machines from complicated schematic diagrams.

On one side of the workshop we see the storage room for meters and measuring instruments. Chieh Chuan-shen (揭传森), the laboratory man, was busy clearing up and making a tally of the instruments. He is not only responsible for the preparation and layout of the experiments and demonstrations in the classrooms, assisting the teachers in explanations, but also has to take care of the "household chores" of the laboratory.

Just as he puts it, a laboratory assistant must know his equipment so well that he would seem like a housewife who knows where the oil, salt, fuel, and rice are at home. He has a complete grasp of where everything is in the lab, what the regulations are, what each thing is used for, where each thing is to be placed, who borrowed it, and when it should be returned.

He also says, "A laboratory assistant should be the living dictionary of the laboratory. In this way everything will be more convenient." Chieh did not come here of his own accord to settle down when he first arrived after he had graduated from the technician school at the Ho-kang Mines. He had always thought that laboratory work was a simple matter of control routines and that there was no opportunity for creative work. He thought that all the merit from results achieved would go to the teachers and students and all tiresome work would be his. But under the patient guidance and education of the Party and the Youth Corps he realized that his way of thinking was the evil influence of capitalistic and individualistic ideology. From then on in

his work he was able to "love the laboratory like his own home." He told me that he was very settled with his work. He realized the importance of his work because of the influence he exerted on the training of students and cadre in mining techniques.

This laboratory has achieved outstanding results because of the following three experiences: (1) Constant strengthening of the personnel's ideological and political efforts and organizing their leadership efforts; educating and helping the personnel to base their efforts upon diligent teaching principles; strengthening their thoughts about all-out efforts in service to teaching.

This laboratory of the College is under direct leadership of the teaching research group of the Mining Machinery Department. The Party branch headquarters of this group pays a great deal of attention to the political thought efforts of the laboratory. They have tried their best to substitute the communistic style of "making teaching easier for the teachers, studying more convenient for the students, and leaving all the difficulties to be solved by the technicians;" for the capitalistic ways of looking down on one's own labors, feeling that merit has gone to others while all bothersome details have been left to oneself.

The Party also takes charge of the ideological education of these personnel, e.g., regarding their diligence in teaching, their loving care of government property, their acting as good examples in obeying rules and regulations and so forth. They regard this laboratory as an organization point for the training in Communistic morality. Over long-term training and assistance they have raised the political awareness of the personnel. As a result the staff of this laboratory has displayed diligence, sincerity, and firmness in their precision work.

(2) With ample planning and with a goal in sight the personnel of this laboratory are being trained and nurtured to have a high level of professional knowledge and capacity for actual and practical work. They are being assisted in coping with the difficulties they come across in their work.

Since preparation for experiments and maintenance of equipment can influence the efficiency and quality of teaching, the raising of the level of technical knowledge of these personnel and their capacity for doing practical work are important links in the raising of the level of teaching efficiency.

The chief of the laboratory and the teachers in charge are constantly explaining to these personnel the purpose of various experiments, what results are expected and what was actually achieved, and the capability and method of operation of all the equipment. The leader of the laboratory also arranged a time for the personnel to receive professional training. On the one hand, they were organized into joining classes in mining machinery as auditors and were led into taking part in certain types of research. On the other hand, they have been sent, along with the students, to take part in going into the mines

to get practical experience, to accustom themselves to actual production processes, and to do maintenance and repair work at the mines.

Through this training that is both theoretical and practical, it has been possible to raise their professional capabilities to new heights. These assistants and technicians can not only prepare experiments themselves, and assist teachers in explaining the experiments, but they have also learned how to repair many types of mining equipment and make all kinds of models.

(3) We should establish reasonable rules and regulations that would make it easier for teaching and convenient for controlling the laboratory. We should also proceed with the training of the vast number of teachers and students in obeying the rules of the system and in taking care of the government's property.

The laboratory is an important place for teaching by demonstrations and for scientific research. The laboratory was established for the purpose of teaching and of being a service to the teachers and students. If we base our setting up of rules upon this way of thinking and understanding, then we will be able to make it easy for teaching, convenient for the teachers and students, and simple to control.

With regards to demonstrations and teaching they have given over-all consideration and made unified arrangements based on the special characteristics of the profession, grade level of the classes, and chronological order of the courses.

They have set up a system for teaching preparation which involves "preparations one week ahead of time and inspection just prior to the class hour." Regarding the maintenance and repair of machinery and equipment, aside from routine maintenance work, they also set up a system of "regular inspection and maintenance," a "registration system," a "safety inspection system," and a "storage usage system for precision and expensive measuring instruments." Aside from these concrete, workable, and practical regulations others have also been set up for usage of tools, borrowing and return of measuring instruments, etc.

10,418
CSO:1728-S/4

BETTER MANAGEMENT OF LABORATORIES & MAXIMUM USAGE OF AVAILABLE EQUIPMENT

[Following is a translation of an editorial in Kuang-Ming Jih-Pao, Peiping, 27 February 1961, page 1.]

The teaching activities carried out in the laboratories are important links in instructional efforts of various scientific, engin-

eering, agricultural, and medical schools of higher education. The experiments going on in these laboratories are work that is important in raising the quality standards of the teachers and students in teaching and scientific research. Because of this the institutions of higher learning are constantly exerting their efforts to establish new laboratories and improve existing facilities. They regard the laboratories as a solid materialistic basis for improving teaching work.

After a few years of maximum efforts we can generally say that these laboratories do not lack what they should have in the way of equipment. This has assured the smooth carrying out of normal teaching and scientific research activities.

However, the laboratories of certain schools and departments have not been fully effective because of improper management. This is one of the weak links of school activity. The problem of how to teach better and raise the qualitative level has become a problem that merits special emphasis.

When we emphasize the establishment of laboratories we shall at the same time emphasize their management. Otherwise, the laboratories, which were established through toil and struggle, would not be able to achieve the results that were intended for them. The news item in today's paper, which tells about the working experience of the Mining Machinery Laboratory of the Peiping College of Mining, reveals two points to us:

In order to manage laboratories properly we must set up a system for the storage and protection of the equipment, its usage, and its maintenance. We must also set up systems for experimental activity, safety measures, and health work in these laboratories. At the same time we must stubbornly carry out the various systems and proceed with many kinds of educational work concerning them.

In order to manage the laboratories properly and have them show their full effects, we must proceed with the ideological education of the laboratory personnel, the teachers, and the students who make use of the laboratories. The management work in a laboratory is not like general administrative work. It is an integral part of teaching work. Only through proper management is it possible for the laboratories to manifest their full utility in the service of teaching.

The experience of the aforementioned laboratory tells us that if we want to manage others properly then we must have a clear and accurate conception of the purpose of management work, viz., to serve teaching and scientific research. We must realize that the equipment is a materialistic basis for demonstration and teaching activity. From this point of view the proper management of laboratories is but an aspect and prerequisite for raising the quality of demonstration and teaching.

Of course this means that the strengthening of laboratory control and management is one of the activities that should be present in raising the standards of teaching quality. However, some of the personnel do not look upon the problems in this way. They regard the preparatory

work before experimentation as bothersome routine, and this directly influences the smooth operation of these experiments. They regard the control and maintenance of equipment as simple management work, and cannot visualize the importance of their own work. In fact certain individuals have the wrong impression that "laboratory work is not what one would choose if one wants to make something out of his life." They feel that taking work in a laboratory is like "preparing bridal clothing for other people." Once results are achieved, then the merit would go to the teachers and students who took part in these experiments, while the bother and irksome work belongs to the technician.

People whose thoughts are under the direction of these wrong impressions will not be able to work properly in the laboratories. We must make the personnel realize that all types of concrete work in the laboratories is for the sake of teaching and to serve scientific research.

Each person should feel it an honor to serve education and be happy to aid scientific research. We must make everyone realize that in the grand efforts to train and cultivate scientists each person has his share of hard work. Only in this way can we strengthen the responsibility of the laboratory personnel so that they will be able to adequately express their positivity and allow themselves to work on solid ground. Then they will also be able to protect the valuable property of the laboratories, do the preparatory work, and clean up properly for the teachers and students in their experiments and help them with various procedures. They can execute their mission properly if there is a system.

There are not many workers in the laboratories, but the teachers and students who utilize the laboratories use them frequently. Therefore, in order to manage them properly it is not only necessary to depend upon the laboratory personnel, but we must also depend upon the teachers and students in the laboratories. Thus it involves a division of labor and responsibility between the laboratory personnel and the teachers and students. This of course depends on whether or not the latter adhere to the regulations.

The most important point regarding the division of labor, responsibility, and cooperation lies in exerting maximum efforts in working together before and during experiments in order to achieve their good and smooth operation.

As the goal is the same they must all take part in this division of labor and cooperate. Everybody should observe the rules and regulations. In this way there will be order and as a result the work would run smoothly in the laboratories. Then they would be able to solve all problems involving material control, experimental safety, and sanitation measures.

Since the number of classes and people using these laboratories are great and in a state of constant flux, it is necessary to continuously maintain the educational work in order to keep up with the execution of the various other systems. There is necessity for a constant

repetition of this educational work.

Some people, for a temporary convenience or because of a lack of understanding, do not pay much attention to the observation of regulations. This results in the loss and damage of materials and may even cause accidents. This is particularly true regarding health problems and material utilization procedures. These regulations are the hardest to observe, consequently people often overlook these regulations.

In order to observe these rules always, first it is necessary to make only those rules that are workable and those which mainly concern themselves with teaching. Second, it is necessary to educate the users of the laboratory to constantly observe the rules so that the smooth operation of the experiment is assured. They must also be made to see that the responsibility of observing these rules lies with them. Those who do not protect government property should also be given moral education.

Due to constant exertion of efforts by many institutions of higher education, the equipment in the laboratories has become more and more substantial. It is no longer necessary to regard the acquisition of additional equipment in these laboratories as the foremost problem. This aspect, however, is necessarily limited by objective conditions. We should now place our foremost and complete attention towards the methods by which our laboratories are to be managed more effectively and the methods by which maximum usage of these facilities can be made.

We should establish a superior system of control and management of these laboratories, organize orderly demonstrations and teaching activities, and effect maximum efficiency of existing facilities. We would then be able to achieve good results in raising the teaching quality of these laboratories.

10,418
CSO:1728-S/5

PREVENTION OF SECONDARY SOIL SALINATION & ALKALIZATION

[Following is a translation of an article in Kuang-Ming Jih-Pao, Peiping, 26 February 1961, page 2.]

The Irrigation Research Institute of the Water Conservation & Hydrolic Power College has been doing research on problems concerning the prevention of secondary salination and alkalization of soil during the past few years in the district of northern Honan which is served by the Yellow River Irrigation System.

Scientific personnel started from investigative research and have already obtained some results from this research in natural laws. They are making progress in the preparation of a preliminary report on these problems. This research has been very meaningful in directing the irrigational activities in this area and in striving towards richer grain and cotton harvests.

As early as 1956 when the Institute was first established they immediately started research on technical problems involving irrigation in the lower reaches of the Yellow River. Beginning with the "Yellow River Diversion to Relieve Wei Project" and after the People's Victory Canal had been successfully operated, we have been basically able to solve drought problems in the lower reaches of the Yellow River.

But how should we go about raising the efficiency and benefits of such irrigation? If there is improper irrigation then there would be an abnormal rise in subterranean water level which in turn would lead to secondary salination and alkalization of the soil. These were the two urgent problems which had to be solved.

Because the lower reaches of the Yellow River were then newly irrigated areas, the salination and alkalization of the soil were not very noticeable at that time. The research personnel had just arrived there and everything was strange to them. How were they to go about their experimentation? The leaders of the Institute felt that they had first to penetrate deeply into investigative research.

After preliminary investigation they felt that it was first necessary to raise the level of efficiency and benefits of irrigation in order to meet the requirements of the masses and of production. Therefore, they conscientiously concentrated their energy on this problem. In order to probe into the details of the area, discover new problems, and make proper and ample preparations for future work, they established hydrographic, geological, and soil investigative groups,

as well as a section to do research in subterranean water movements. They began research work in over-all inspection and systematic observation of basic conditions.

After two years of efforts they formulated a set of measures that would raise the efficiency and benefits of irrigation suitable to this area, e.g., formulating methods of irrigating the land, controlling the utilization of water, and setting up a system of ditches and canals.

At the same time, during the two years that they were making over-all investigations, they discovered that in this district there was "backwash" (反[illegible] [?]) on the surface of the land at certain places. This forebode salination and alkalization of the soil. In some places salt spots had already appeared on the soil surface. These spots were spreading and threatened farm production. The prevention of this phenomenon could no longer be delayed.

Upon discussing the problem with local Party authorities and relevant local departments, the leading comrades at the Institute selected the Chi-li-ying Commune in the People's Victory Canal Irrigation System area as the home base for research into this problem. They joined local production and research departments as well as the masses of the commune in cooperative research to solve the problem.

The research personnel organized and delved into the data collected during the past few years of investigation and made penetrating observations on the frequency and regularity of the occurrence and development of salination. They also went to plots of land far apart from each other to determine the intimately related problems of subterranean water level and changes in salt content.

Based on the principle of quantitative equilibrium of water they discovered technical means of digging ditches that were suitable for varying conditions of lands. They achieved results after repeated experimentation.

Last year the Chi-li-ying Commune adopted this method and integrated it into other agricultural measures and was able to effectively control further salination. They were strikingly successful in assuring high quality production in the cotton fields.

In the process of research the leaders of the Institute emphasized that research should be based on practicality. The solution of local production problems must be based on actual local conditions. At the same time we must first analyse and understand natural laws before we theorize.

For instance, people generally had believed that irrigation was the main cause of changes in subterranean water level in the irrigational districts. But in the lower reaches of the Yellow River there was a vast accumulation of rain water in July and August which resulted in problems concerned with surface water control. Under these concrete conditions we must not only do research on subterranean water movements and equilibrium, but we must also pay strict attention to the drainage of surface water and the relationship between the seepage of this water and the subterranean water.

Based on these analyses the research personnel believed that to meet requirements of local conditions and prevent salination and alkalization of soil, it was necessary not only to improve irrigation techniques, but also necessary to pay attention to drainage and seepage problems.

Also, when they were digging drainage ditches and determining the depth of subterranean water, the constant used in their plans did not suit actual conditions in the area to be served. They went through exhaustive investigative research in order to re-determine the water level immediately under the ditches.

This year the Institute's personnel have decided to continue penetrating actuality to work out a forecast system and prevent salination and alkalization of the soil along the lower reaches of the Yellow River. They hope to be able to achieve even better results for guaranteed stabilization of agricultural production.

10,418
CSO:1728-S/12

BEES ARE FULLY UTILIZED IN INCREASING THE PRODUCTION OF RAPESEED OIL

[Following is the translation of an article in Jen-min Jih-pao, Peiping, 28 February 1961, page 2.]

In recent years each mou, on the average, can produce 50 to 100 chin of rapeseeds. For the better districts each mou yields 150 to 200 chin or more. The difference in production is quite remarkable.

Pollination by bees is a very effective method of increasing the production of rape per unit of land. In 1958 Hsing-hua Hsien in Kiangsu Province placed many bee colonies in its large rape fields and their overall production of rape greatly increased. Also during that one month of blooming period, 35 chin of honey was harvested in each beehive.

Tz'u-ch'i, Chekiang; Chung-hsien, Szechuan; Sung-tzu, Hupeh; Nan-cheng, Shensi; and Nan-hui, Shanghai are the five rapeseed oil producing and important bee-raising areas.

During 1959 and 1960 the experimental units of Huchien Agricultural College and Chekiang Agriculture University showed that bee pollination had the following effects:

Reduced the period of going to seed from four to six days;
Effective seed increased from 28.5% to 185.6%;
Non-effective seed decreased 24.5%;
Flower falling seed reduced 39.5%;
Weight per 1,000 seeds increased one gram;
Oil-producing rate increased from 4.62% to 10%;
Germinating rate increased 95%.

The above experimental data shows that it is definite that pollination by bees will not only increase the quantity of rapeseed oil production, but also will improve its quality.

Rape belongs to the entomophilous class. It requires the help of carriers and its self-pollinating rate is very low. Bees are the rape's most effective pollinizers because they carry a large quantity of pollen. Quickly and evenly, pollen is distributed to the stamens of other plants. Opportunities for fertilization are increased and the rate of sterilization is decreased.

The rape flower belongs to the family of indefinite inflorescence. Its blooming period is quite long. Often, due to insufficient pollen, the late blooming flower has less chance of being fertilizer. Through the method of pollination by bees, a larger proportion of the rape flower will yield seeds.

Under the restrictions of neither increasing capital nor plowing power, nor enlarging the acreage, bee pollination will increase the quantity and improve the quality of rapeseed oil. At the same time, it will yield a large amout of honey.

Suggested Measures for Increasing Production Campaign

Utilizing bee pollination for the dual purposes of rape and honey harvesting, the following suggestions are listed.

1. In the rape field establish one bee colony per five to ten mou. For larger fields, it is best to have one bee house (50 to 100 beehives) per 500 mou. Beehives should be scattered loosely. The distance between bee houses should not be too close, since a smaller number of bees will yield bountiful honey, but poor pollination results for rape. On the other hand, too many bees will benefit rape pollination, but will yield poor honey.

2. In China most rape fields are in the southwest area. That area also has the highest number of bees. However, rape is grown on the plain, and bees are raised around the mountain terrains. The distance between these local beehives and the rape fields is too far for effective pollination. To solve this problem, it is necessary to 'transfer' all the local methods beehives, to liberate these bees from primitive cares and self-surviving nests.

In 1959, 1,960 beehives were "transferred" from local method to scientific bee raising at Ts'ung-ching Hsien in Szechuan. These beehives were distributed to all the rape fields in that hsien. The result was a tremendous rape harvest with an additional 100 tons of honey. (Ts'ung-ching Hsien is the rapeseed oil's heavy production center.)

3. 50% of the bee industry is concentrated in China's southwest area. They are all under local method management. In order to "transfer," it is necessary to provide beeboxes, brood chambers, and a whirling extractor for removing the honey. To achieve these objects we must initiate aggressive community movements to improve the equipment for raising bees. To do this, the use of local productions and material is being encouraged.

4. At present, the levels of technique of raising bees vary. In the southwest area, especially areas which are far from the big cities and railroads, the techniques are quite backward. We must organize classes to rigorously train large numbers of technicians for the communes.

5. Some of the provinces in the southwest areas, rape begins to bloom in February and March. In those places available ability can be utilized to organize bee farms to be distributed in the rape fields. In recent years, in Shansi, Hupeh, and Kiangsi Provinces quite a few of the bee farms existed already. This year they must be farther expanded.

10,450
CSo: 1729-S/4

DISCUSSIONS ON THE CHARACTERISTICS OF PSYCHOLOGY

[Following is a translation of an article written by Ch'en Ta-jou (7115 1129 2677) in Jen-min Jih-pao, Peiping, 12 March 1961, page 5.]

Recently the Institute of Psychology of the Academia Sinica held a conference to make concluding discussions of the fundamental experiences of three years' combining of practical developments in the related study work.

The spokesman of the conference recognized that the Institute of Psychology, in founding the incessant struggle against the capitalist class in repeated and deep study of the fundamental theory, had obtained an impressive merit in locating the correct direction for the development of psychology. Take for example the "Teaching Psychology in Promoting Teaching Reform," "Labor Psychology in Promoting Technical Revolution and Raising Labor Productivity," and "Clinical Psychology in Coordinating and Comprehending Treatment;" their functions on the different degrees have been exploited with definite results. In the three years the institute announced more than 100 research reports and theses. Two research groups were separately invited to participate in the 1959 All-China and Peiping advanced workers' meetings owing to their better research results. Most of the work has been carefully observed by related operation divisions and welcomed by the masses.

What are the experiences in obtaining these merits? This was the hottest problem in the concluding discussions. The members all recognized that excepting the strengthening of the Party leadership and politics as command, there are three fundamental experiences, i.e., deep-combining practical research, revealing the intermediate science characteristics of psychology during work, and thoroughly following the route of the masses. The members considered that "thoroughly revealing the intermediate science characteristics of psychology during work" is the most worthwhile and important experience in establishing new psychology. The experience is new and should be made particularly conclusive. Hence, how to thoroughly reveal the intermediate science characteristics of psychology has become the focus of debates. In synthesis, there are three following different opinions.

One kind of opinion recognized that psychology is an intermediate science dominated by social science. In the practical study, it should be principally applied to the method of social science to study mankind's class relationship and their social living. The research should be dominated by mankind's social characteristics in their inclination. Those close

viewpoints considered that the teaching psychology is at least an intermediate science as dominated by the social science. Although the comrades with this opinion recognized that mankind's mind inclination is not only the reflection of objective reality, but also the functioning of the brain, yet they emphasized that all mankind's psychological activities cannot separate from their social characteristics. They recognized that the motive of the related education, source of psychological development, and the cultivation of moral character have to be studied from the social side and not from the brain organ. They further recognized that without the discovery of psychological activities of the brain organ, the inner factor of the psychological development also can be revealed.

Some other kind of opinion recognized the different way. The above opinion advocated that the social science is the guide and decisive factor of psychology without the necessity of studying the brain organ. Thus, it actually makes psychology a division of social science. However, the comrades with this opinion also recognized that psychology is not exactly at center an intermediate science. It is an intermediate science with some emphasis. For instance, Teaching Psychology is inclined to social science, and Clinical Psychology is inclined to natural science. The different problems can have different emphases in study. Take another example. In Labor Psychology, the studies on motive, subjectivity, and how to effect the processes of invention and creation, are inclined to the social sciences. The studies of creative thinking, imagination, expression, and opening up of intelligence of a model pattern are inclined to natural science.

These close opinions considered that the differential analysis of the psychological phenomena is close to natural science, and the general analysis of the phenomena is close to social science. In the past Clinical Psychology was more inclined to the investigation of cause of disease, so its science character is at middle with inclination to the social science side. At present, more studies of Clinical Psychology are focused on the biological organs of disease and mind, then its science character is shifted from the inclination to social science to natural science. Therefore, the different processes in development can have different emphases on the character of intermediate science. Those who advocated that psychology has a certain emphasis, all objected the substitution of inter-science for intermediate science, and also objected that psychology has not its own particular study field. They pointed out that this substitution is a mistake because of the separation of psychology from the intermediate science category, and only realizing from the appearance that psychology is, on the one hand, inter-related and repeated with natural science, such as the activity rule of the brain organ and feeling are related to biology; on the other hand, the psychology is inter-related and repeated with social science such as the language and thinking is overlapped with linguistics and logic. They didn't realize that the different sciences are used to study the problems on different angles. They are not repeated or mutually substituted owing to the inter-relation of study objects.

The third opinion is a more reasonable viewpoint of most of the members after the debate. They recognized that the intermediate science

character of psychology is principally determined by the character of the object it studies. Psychological phenomena are complicated and quite different from each other. The psychological phenomena are neither purely natural phenomena nor purely social phenomena. The social and natural characters of psychology are not mechanical with a definite ratio of relationship, or with one factor permanently dominant. The two characters of psychological phenomena are not separated and have the relationship of unity of opposites in things. Hence, in studying such complicated phenomena, psychology is not purely social science or natural science, but an intermediate science with both characters of natural science and social science. The characters of intermediate science are the particulars of inherent character of the study object of psychology.

Hence, as for the character of a science, they objected to the opinion that psychology has emphasis or dominance. They recognized that those who advocated the emphasis and dominance of psychology did not thoroughly recognize the complexity of the inherent character and particulars of psychology. This is the mistake of the first opinion. The second opinion has confused the practical problems during work with the direction problem of the science character of psychology. They pointed out that psychology is an intermediate science, and requested us to have correct and whole-sphere recognition of the character and particulars of the psychological phenomena to avoid mechanical, simple, or singlehanded treatment of this problem.

The direction and premises of the research work should be recognized by all researchers of psychology. Under the premises of this recognition, they did not deny that in practical problems and in different processes of research work the emphasis on a certain science may occur. They also did not deny that during the different psychological phenomena the different dominant characters of social or natural sciences may occur. However, they recognized that the emphasis during the practical work and different characters of the different psychological phenomena do not sufficiently prove that psychology has to have its emphasis or dominance. Also, there is not sufficient ground to transform psychology's character as a kind of intermediate science. They emphasized that during the work, in eyeing psychology's characteristic of intermediate science, the studies have to be directed on psychology's character along natural science and social science. Most important of all, the study of these two characters should be pinpointed on the relationship of the unity of opposites in things. Only by so doing can psychology be distinguished from philosophical social science, mainly in studying the related psychological phenomena with their social character. Also, psychology can be distinguished from physiology and other natural sciences mainly by studying the related psychological phenomena with dominance of natural characters. Only by so doing can the subjectivity, singlehandedness, and mechanical separation in the old psychology be removed to relieve the limitations and binding on the present method. Then new methods can be created.

In addition, in the conference two other fundamental experiences were ardently discussed. The members recognized that the combining of

practice has to understand and solve key problems in practice. Thus, our work can be rooted on practice and can establish a good condition for further work. At the same time, we have to continuously and thoroughly execute the route of the masses to intimately combine the advanced experiences of the masses with the specialized experiments and studies to expand the number of researchers, to successfully accomplish the great coordination in pushing psychology for a greater contribution in the socialist construction.

10,424
CSo: 1752-S/4

EDUCATIONAL PSYCHOLOGY LECTURES SPONSORED BY THE CHINESE PSYCHOLOGICAL ASSOCIATION AND OTHER ORGANIZATIONS

[Following is a translation of a news item in Kuang-ming Jih-pao, Peiping, 8 March 1961, page 2.]

A series of lectures on education psychology is jointly sponsored by the Chinese Psychological Association, the Institute of Psychological Research of the Chinese Academia Sinica, Peiping University, the Peiping Normal University, and the Educational Research Institute. The audience will consist of teachers from experimental high schools, elementary schools, and kindergartens in the Peiping municipality. Through the cooperation of psychologists and educators, these lectures will enable the participating teachers to understand the problems, methods, meaning, and function of educational psychology so that they will realize its important and actively participate in the research work.

The Institute of Psychological Research, the Peiping Normal University, and the Educational Research Institute have already prepared lectures for the following topics. "The Scope of Educational Psychology," "The Problem of the Formation of Children's Class Concepts," "Studies in Children's Self-Discipline," "The Psychological Problem in Physical Work Education," "The Psychological Problem in Language Teaching" and "Pre-School Children."

10,454
CSO: 1753-S/2

THE USE OF THE NAMES OF ALPHABETIC LETTERS IN SCIENCE AND TECHNOLOGY MUST BE SWIFTLY UNIFIED

[Following is the translation of an article by Fu Mou-chi (0265 2021 0529), Assistant Director of the Institute of Languages of National Minorities, in Kuang-ming Jih-pao, Peiping, 3 March 1961, page 4.]

Judging from the articles in Kuang-ming Jih-pao concerning the problem of reading the letters of the alphabet used in science and technology, there are mainly two schools of thought. The majority agrees that the names of the letters of the Chinese alphabet should be adopted, and the minority thinks that the names of the English letters should be used. I am completely for the adoption of the Chinese names of the letters, not only because this is the majority opinion, but mainly because this is completely justified.

The necessity of adopting the letters of the Chinese alphabet was made clear when the Program of Chinese Latinization was announced on 11 December 1957. The Jen-min Jih-pao's editorial "The Mission to Reform the Language and the Program of Chinese Latinization" had this to say on the advantages of the program. "To express scientific terms and symbols in letters of the Chinese alphabet is conducive to raising the cultural standard of the people and to their mastering of modern scientific knowledge." This should not be interpreted to mean only that the written letters of the Chinese alphabet should be used, as their written forms are the same as those traditionally used in science and technology. It is obvious that the Chinese names of these letters and their pronunciations are also to be used.

The program clearly designated the name of each letter, thus requiring that this name be used on all occasions. (The term X-ray represents a special use of the letter x, hence it may be written as eks-kuang.) We have every reason to expand the use of our alphabet, and we have no reason whatsoever to exclude it from the realm of science. Since the letters of the Latin alphabet are often used in science and since there is great confusion as to how to read them, it is imperative that the use of the names of the letters be unified. The Chinese alphabet is being widely used in government agencies, organizations, schools, and society; it has already been accepted by the masses. Although many intellectuals are familiar with the English alphabet and other Latin alphabets, they constitute only a very small minority. For them to change their habits of reading a few letters should be an easy and necessary task. Some people believe

that the English names for these letters are "universal," hence they should be retained. But this theory is totally without ground. As pointed out by many comrades, the names of letters of Latin alphabets are internationally diversified and no language that uses the Latin alphabet has not modified the names of its letters to suit the special language conditions of the country. As far as being universal is concerned, the Chinese alphabet is more universal than English. Among the names of our letters only the names for n, w, x, and y are comparatively uncommon. The names of the letter n pronounced ne has a vowel following a consonant -- a practice also found in other languages. Wa, xi, and ya, the names of the letters w, x, and y, truly reflect their sounds and uses. This is true for each of our letters and makes the nomenclature of our letters superior. On the contrary, the English w and y do not represent their phonemic values. Furthermore, the English names for a, b, c, d, e, h, i, j, o, p, t, u, and v are all comparatively uncommon. How could it be said that the English alphabet is more universal than the Chinese alphabet? Obviously, the arguments opposing the use of the Chinese names are very weak.

China is a country of many nationalities led by the Han. As far as science and technology are concerned, the Chinese names of letters should be used not only in the Chinese language but also in the languages of the many minority nationalities. The minority nationalities are willing to accept it and it should be easily done. Since the Liberation the Party has helped the minority nationalities create or radically reform their writing systems. They have adopted the Chinese alphabet and the names of its letters. Those minority nationalities that are still using their original writing systems and those that do not create separate writing systems have acquired the knowledge of the Chinese alphabet as well as the names of its letters, through studying Chinese by means of the alphabet. Therefore, the minorities will naturally apply these names to science and technology. To facilitate the interchange of scientific knowledge and especially to facilitate the minority nationalities to learn from the more advanced Chinese, the Chinese letters and their names should always be used in teaching science and other activities.

To sum up, the uniform adoption of the letters of the Chinese alphabet and their names in science and technology throughout the country is the most reasonable course, and moreover, the conditions for it are ripe. It is hoped that comrades in educational and scientific circles will swiftly solve this problem.

10,454
CSO: 1753-S/3

LET US CHANGE IT QUICKLY

/Following is the translation of an article by Liang Szu-ch'eng (2733 1835 2052), Chairman of the Department of Civil Engineering of the Ch'ing-hua University in Kuang-ming Jih-pao, Peiping, 3 March 1961, page 4./

The following episode is alleged to have happened about 40 years ago. A man who had earned his doctor's degree abroad was hired to teach chemistry by a certain university. During his first lecture he was dragged down from the lecturer's rostrum by the students. They complained that this chemistry instructor was just too "hua-hsueh" (chemical). For at that time, plastic products, the wonder of chemistry, had just been introduced into Chinese markets. The new products looked so much like the original made of materials which plastic had replaced. Only upon close examination were they found to be "fake." Hence the word "chemical" became a synonym of "fake." The students noted that the doctor did not even know how to say "nai ch'ih jou chin." (These four characters should be pronounced accurately in Chinese Mandarin.) /This is the Chinese transliteration of the English word nitrogen./ Instead he uttered something like "nee-t-ro-gen." How could such a big fool teach college chemistry!

The doctor's predicament was attributable to the fact that he had studied in Germany. He pronounced the English word nitrogen in the textbook with strong German accents. At that time, due to the cultural aggression of English imperialism and later American imperialism, the majority of Chinese students who went abroad to study went to England and America. Furthermore, many students who studied in Japan imitated the Japanese in using English pronunciation to read the letters of the Latin alphabet. To many people, the English pronunciation became so natural that they simply identified the Latin alphabet as the English alphabet.

Before the promulgation of the Chinese Latinization Program of 1958, we could not possibly have our own pronunciation of the Latin alphabet, foreign as it was to us. To borrow foreign pronunciation wasn't only to be excused, but it was the only way out. The preference for the English pronunciation among Chinese intellectuals is attributable to historical and social factors such as the semi-colonial status which resulted from the Opium War, the concessions in Shanghai, the tremendous power on China's financial affairs exerted by the Hongkong and Shanghai Bank, the British-controlled maritime customs, and the spiritual aggression of which the American imperialists were so proud. Since there was no other way but to use foreign pronunciation, English was just as good as any other.

From the previous articles by many scientists and linguists printed in previous "Language Reform" columns and the above story, we see that different countries and races have their own pronunciations of the same Latin alphabet. In the past we did not have our own pronunciation; therefore, we had to use foreign pronunciation. Social and historical factors have forced us to use the English pronunciation. But today things have changed. The Latin alphabet has become a part of the Chinese language. It is estimated that over 100,000,000 grammar school and high school students have learned the Latinization. The broad masses of workers and farmers have also learned it in the literacy movement. Only the small minority of college students, high class intellectuals, specialists, and professors have become the "illiterates." They only know the foreign pronunciation. (The majority of them use the English pronunciation.) Although speech habits are hard to change, it takes only a few minutes to learn the Chinese pronunciation of the Latin alphabet. If one practices it a couple of weeks, one should be completely accustomed to it.

Every time the radio announcer says, "Now listen please to -- for example -- Beethoven's A Major Sonata," someone would say, "I certainly don't appreciate her "A". Why doesn't she pronounce it our own way?" Wouldn't the school children ask their mothers while pointing at the radio program why the radio announcer said "Ei" instead of "A"?

No matter whether in scientific work, education, or announcing "A Major Sonata" over the radio, the letters of the alphabet must be read according to Chinese pronunciation, and no exception should be allowed. The English pronunciation is a remnant of imperialist that must be wiped out. This matter, small as it looks,has much to do with the profile of the spirit of the Chinese people who have arisen. Let's change it quickly!

10,454
CSO: 1753-S/4

TEACHING THE ALPHABET THROUGH TELEVISION

[Following is the translation of a TV program announcement in Kuang-ming Jih-pao, Peiping, 8 March 1961, page 4.]

Between 6:30 p.m. to 7:00 p.m. on 15 March and 22 March, the Peiping Television Station and the editors of this paper will jointly present an educational program, "The Chinese Alphabet and the Alphabet Song." The program will last ten minutes each time. All concerned organizations, school administrators, and teachers are hereby requested to tune in.

10,454
CSO: 1753-S/5

LANCHOW MILLET PROCESSING PLANT USES BRAN TO MAKE WINE, SYRUP, AND SAUCE

[Following is a translation of a dispatch in Jen-min Jih-pao, 26 November 1960, page 3.]

Workers of the Lanchow Millet Processing Plant have sucessfully used bran left over from millet processing to make wine and have the sediment from wine distillation to make syrup. Sediment from the syrup is then used to make vinegar and sauce. According to preliminary tabulation, after water is added and if utilized efficiently, 100 chin of bran can yield 8 chin of oil, 10 chin of wine, 30 chin of syrup, 50 chin of vinegar, and 30 chin of sauce. The remaining sediment can also be used as hog feed.

The alcoholic content of the grain-bran wine made by workers of this plant is 80 percent and sugar content of the syrup is 30 percent.

The efficient use of bran not only increases its value 24 fold, but can also conserve large quantities of food grains. Between January and October this year, the plant used grain bran to make 122 tons of syrup and 41 tons of wine. The two items alone made possible the saving of some 700,000 chin of food grain.

10,249
CSO: 1400-S/14

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