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No. 177

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This serial publication contains abstracts of articles published in selected scientific and technical journals. JPRS is unable to honor requests for original source materials or information as to the availability of full translations of these articles.

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ARCHITECTURAL JOURNAL

AUTHOR: None

ORG: Kiangsi Provincial Institute of Architectural Design

TITLE: "Historic Revolutionary Buildings and Memorial Buildings in the Ching-kang Mountains"

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 2, Jun 77 pp 1-7

TEXT OF ENGLISH ABSTRACT: The Ching kang Mountain was the first revolutionary base area established by Chairman Mao.

In 1927 Chairman Mao led the troops from the Autumn Harvest Uprising here and created China's first rural revolutionary base area. This began the road to victory for the Chinese revolution -- surrounding the cities from the countryside and finally seizing the cities.

The revolutionary historic buildings in the Ching kang Mountain are the places where Chairman Mao once lived and engaged in revolutionary activities. Now they have become the big classrooms for carrying out

[continuation of CHIEN-CHU HSUEH-PAO No 2, Jun 77 pp 1-7]

lessons in Chairman Mao's revolutionary line, and are listed among the most important part of China's revolutionary historic relics. They will be paid respects to by the people of generation after generation.

The revolutionary historic buildings in the Ching kang Mountain consist of three parts: 1. houses belonging to peasants; 2. buildings belonging to the feudal ruling class, such as landlords' residences, temples, schools, etc.; and 3. buildings erected after the establishment of the Red political power.

When fighting in the Ching kang Mountain, Chairman Mao lived in a rustic house, leading the great revolutionary struggle and writing brilliant works. When the people today pay their respects to Chairman Mao's old home, scenes of revolutionary struggle full of difficulties and hardships in those days seem to present again before them.

The establishment of the Red political power made those buildings serving the feudal ruling class return to the hands of the people. They had been transformed according to revolutionary needs to become the important places for the people's engaging in revolutionary activities.

[continuation of CHIEN-CHU HSUEH-PAO No 2, Jun 77, pp 1-7]

The Red political power had set up a lot of new buildings, but the majority of them were destroyed by the Kuomintang reactionaries later on. After liberation those having been restored include the Red Army hospital at Small Well, the auditorium of the Workers' and Peasants' Democratic Central Government, the tomb of Red Army martyrs at Juichin. It is a two-storied wooden structure, with a seating capacity of more than 2000 people. Functionally it well solved the requirements of sight lines, acoustics, ventilation and natural lighting. It was planned in the form of an octagon, resembling the cap of the Red Army. The fan-like plan of the auditorium successfully solved the unity of form and content.

Tzuping, once the center of the revolutionary base, has been turned into a beautiful, new town in the mountains. Here have been restored Chairman Mao's old home and the headquarters of the Fourth Red Army. There are the revolutionary museum, the Ching kangshan Hotel, a department store, hospital, sanatorium, cultural palace, etc. Factories have been built to produce farm machinery, paper, tea and other items utilizing local resources. There are also five hydro-power plants the people of Ching kang Mountain constructed themselves.

[continuation of CHIEN-CHU HSUEH-PAO No 2, Jun 77, pp 1-7]

The revolutionary museum was set up in 1959. The building stands on an elevated site. As one enters it, a flight of stone steps up from the road helps to create an atmosphere of monumentality. Gray-tiled roofs with fine curved lines, double layers of wooden rafters and upturned corners of eaves reveal the characteristics of traditional architecture.

The Ching kangshan Hotel was built in 1960. When Chairman Mao returned to the Ching kang Mountain in 1965, he lived here. His office and bedroom were simply furnished. He ate the ordinary diet and slept on a board bed. His style of plain living has deeply educated the people of the Ching kang Mountain.

Included are 16 figures and 22 photographs.

AUTHORS: LIANG Yu-lin [2733 3558 7792]  
WANG Chih-hsiang [3769 1807 4382]

ORG: None

TITLE: "LU Hsun Memorial Hall in Shao-hsing"

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 2, Jun 77  
pp 8-10

TEXT OF ENGLISH ABSTRACT: Shao-hsing County of Chekiang Province is the native place of the great revolutionary, thinker and writer -- LU Hsun [7627 6598]. After Liberation, a memorial hall for LU Hsun was erected at Shao-hsing. Since the Cultural Revolution, a large number of foreign guests and the people of all nationalities in China have come there to pay their respects to LU Hsun's old home and to honor the memory of his brilliant contributions. To meet the new needs, a new memorial hall for LU Hsun was established in 1972.

The new hall was set up on the site of the old one, adjacent to LU Hsun's old home on the left. For the sake of creating a quiet environment, the plan was designed in the form of a closed square, on the periphery of which were arranged exhibition rooms, surrounding a tree-

[continuation of CHIEN-CHU HSUEH-PAO No 2, Jun 77 pp 8-10]

planted courtyard. This not only satisfies the requirement of daylighting, reduces the interference between exhibition rooms, but also provides the visitors with a convenient resting place. Around the courtyard garden are covered corridors, with their floors paved with slates from the East Lake of Shao-hsing. All this gives the whole environment a rich atmosphere peculiar to local architectural tradition.

In designing the facades, the upturned charcoal gray eaves and white plaster of the walls -- one of the striking characteristics of traditional Shao-hsing architectural motifs has been considered. Thus, the plaster of the external walls is made of white cement mixed with stone particles, and the roof is covered with precast concrete old-fashioned round tiles. Moreover, the columns are faced with gray marble from Hangchow. The design achieves an effect of both modesty and monumentarity.

Included are four figures and nine photographs.

AUTHOR: None

ORG: Construction Command of Fukien Vinylon Factory

TITLE: "Vinylon Factory in Fukien"

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 2, Jun 77  
pp 12-17

ABSTRACT: The Fukien Vinylon Factory is located 7 highway kilometers from the county seat of Yung-an County, but only 4 kilometers away, via a special railway. This factory was designed, equipped and installed exclusively by Chinese nationals; it was completed in 1975 for the most part. Locally quarried limestone is the principal raw material in the manufacture of chopped vinylon fibers. In the factory there are raw material processing, carbide, polyethylene glycol, spinning and methanol shops as well as subsidiary facilities for power, machine repair, instrument repair, drainage, sewage treatment, refrigeration, air separation and air compression. The factory uses up more than 6000 tons of surface water per hour. The spinning shop is nearly 250 meters long. Carbide refuse can be converted into 30,000 tons of cement a year; coal cinder, with powdered lime added, can be made into 20 million standard bricks [a year]. Included are one table,

[continuation of CHIEN-CHU HSUEH-PAO No 2, Jun 77 pp 12-17]

11 figures and 14 photographs.

AUTHOR: None

ORG: Canton Municipal Planning Bureau

TITLE: "Pai-yun Hotel in Canton"

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 2, Jun 77  
pp 18-23 & 17

TEXT OF ENGLISH ABSTRACT: In order to implement Chairman Mao's revolutionary line in foreign affairs well and to meet the needs of developing foreign trade, especially entertaining the guests of China's Export Commodities Fair, a highrise 33 storied building -- the Pai-yun Hotel was set up in Canton last year.

The site is near by the Encircling City East Road on the south, at a distance of 4 kilometers from the Export Commodities Fair, and is easily accessible by public communications. The neat and clean architectural surroundings and pleasing greenery harmonize with the new hotel. On the east and south there are open spaces which, combining with the hotel, will contribute to the forming of a district central square in the layout of city planning. The site is geologically good enough to fit in with the requirements of foundations peculiar to highrise buildings.

[continuation of CHIEN-CHU HSUEH-PAO No 2, Jun 77 pp 18-23 & 17]

In the general layout, the main block is situated in the northwest part of the site where a sufficient depth of stable rock near the ground level provides suitable support. For the convenience of entertaining guests, the entrance hall, general service counter, lounges and restaurant, are placed on the south and southeast sides of the main block, having two stories and connected with it by means of covered corridors. The building group employs a spatial organization of the combination of highrise with low-rise sections. Thus, the highrise section houses the small-spanned suites of guest rooms with standard floor plans, whereas the low-rise section the large-spanned public spaces, such as the entrance hall, restaurant and so on. At the same time, the several parts of the hotel, skillfully blended with courtyards, ponds and greenery arrangement, form an organic unified whole both architecturally and functionally.

With a total of 33 stories and one basement, the main block contains the public service facilities (1st floor), guest rooms (from 2nd to 28th floors), a multi-purpose auditorium (29th floor), dining rooms (30th and 31st floors), as well as elevator machine rooms and water tank (32nd and 33rd floors).

[continuation of CHIEN-CHU HSUEH-PAO No 2, Jun 77 pp 18-23 & 17]

The main block is of reinforced concrete construction with shearing walls. In designing the standard floor plan, a symmetrical arrangement is achieved by employing a straight central corridor in the longitudinal direction, thus both simplifying the structural system and making the center of stiffness and the center of force of action approximately coincide. In addition, the cantilevered slabs on the external walls projecting from each floor facilitate the repairing and cleaning of the walls and help to rainproofing and sunshading.

Included are three tables, five photographs and ten figures.

AUTHOR: None

ORG: Investigation Section, Laboratory No. 4 and Research Laboratory, Peking Institute of Architectural Design

TITLE: "Analysis and Improvement of Seismic Resistance of Structural Members"

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 2, Jun 77 pp 24-27 & 46

ABSTRACT: After the July 1977 T'ang-shan earthquake, studies were undertaken in the earthquake area and in Tientsin and Peking investigating damages to flexible joints, parapets and nonbearing partition walls of structures. In many places, the quake collapsed parapets and nonbearing partition walls while the main bearing structures remained intact. This article suggests strengthening these members up to the same quake-resistance as the main body of the structure. Suggestions for quake-resistance include: structural shape should be simple. All brick parapets should be strengthened with at least 6-centimeter thick reinforced concrete. It is best to avoid using two kinds of materials for a partition wall; otherwise, the tensioning joints should be strengthened. Within nonbearing partition walls, 6-centimeter thick

[continuation of CHIEN-CHU HSUEH-PAO No 2, Jun 77 pp 24-27 & 46]

reinforced concrete ribs should be installed. Included are 17 figures showing earthquake damage.

AUTHOR: LI Chen-ch'iang [2621 6966 1730]

ORG: Folded-Plate Experiment Group

TITLE: "Study of the Seismic Resistance of Folded-Plate Buildings"

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 2, Jun 77  
pp 28-29

ABSTRACT: In recent years V-type folded plates have been installed in new structures with 24 meters as the maximum span. After the July 77 T'ang-shan earthquake, folded plates studies were conducted. Experiences from the investigation resulted in several measures for improving earthquake resistance. Longitudinal tie rods should be installed above the folded-plate roof. Two kinds of installation were suggested for making gable walls more stable. The stability of sub-roof joists should be improved. The folded-plate study group had representatives from the Peking Petrochemical Plant Design Institute, Peking Structural Member Plant of the Peking Railroad Bureau and the Fukien Provincial Design Institute of Light Industry. Included are two photographs and three figures.

AUTHOR: None

ORG: East China Power Design Institute

TITLE: "Architectural Design of the Wang-t'ing Power Plant With 300-Megawatt Generator"

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 2, Jun 77 pp 30-33

ABSTRACT: The Wang-t'ing 300-megawatt turbine-generator set employs double internal water cooling; the set was designed and built in China. This article reports on the design and construction of the power plant building. Originally, the Wang-t'ing Power Plant was equipped with ten medium and small generator sets. The plant area is limited and so a chimney type roof was adopted. The available floor space in the plant was only 93 meters wide and 200 meters long; however, usually the straight-line arrangement of a turbine room, a boiler room and a chimney requires a width of 130 meters for a 300-megawatt power generation unit. In addition, space for prefabricating structural members should be reserved on the site. By utilizing one feature of oil-burning power unit (less bulky equipment under the turbine-generator set), it was found possible to install blowers and other accessories in this space.

[continuation of CHIEN-CHU HSUEH-PAO No 2, Jun 77 pp 30-33]

Therefore the chimney was installed next to boiler to economize space. The boiler truss was designed for a large hanging type direct-flow boiler of 1000 tons of steam evaporated per hour with plane dimensions of 24 x 46 meters and a height of 54 meters. This large boiler was designed and built for the first time in China. All the trusswork is prefabricated reinforced concrete members. Included are one table, six photographs and nine figures.

AUTHOR: WU Lien-hui [0702 6647 6540]

ORG: Ma-an-shan Iron and Steel Company Design Institute

TITLE: "Preliminary Discussion of Staircase-Corridor Type Apartment Building"

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 2, Jun 77 pp 34-39 & 29

ABSTRACT: Housing construction in China requires large investments. So increasing the use factor (K) is economically significant. A larger K means more floor space for the living quarters and other areas can be made smaller. Because the foot traffic area--stairs and corridors--is used only for short periods, reducing this area can raise K values. In 1971 and 1972, several three-story staircase-corridor apartment buildings were designed and built with reduced unit construction cost but a 25 percent larger K. Moreover, each unit has a separate kitchen and a separate toilet, in addition to closets to satisfy residents' demand. In the present design of lateral-direction staircase-corridors, three-story buildings can be built by making the stairway a little steeper. Even four or five stories can be accommodated in buildings with an inner courtyard. The article goes on to describe the

[continuation of CHIEN-CHU HSUEH-PAO No 2, Jun 77 pp 34-39 & 29]

advantages of this design and detailed dimensions. Included are four tables, three photographs and 25 figures.

AUTHOR: None

ORG: First Architectural Design Institute of Shensi Province

TITLE: "Peasants' Paintings Exhibition Hall in Hu-hsien County"

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 2, Jun 77  
pp 40-41

ABSTRACT: The rectangular Hu-hsien peasants' painting exhibition hall is a composite structure of brick bearing walls, with a construction area of 1962 square meters. Usually, the painting viewing distance is 1.5 to 2.5 meters, so an exhibition room was designed 7.5 meters in width. The second floor houses eight exhibition rooms and the public can have the access over an outdoor stairway. The ground floor contains reception rooms for foreign guests, special exhibition rooms and offices. The floors were paved with terra cotta and walls coated with aluminum paste. Long windows provide side lighting. Included are two figures and seven photographs.

AUTHOR: None

ORG: Architectural Physics Group of the Nanking Engineering College

TITLE: "Effect of Landscaping on Noise Reduction in Cities"

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 2, Jun 77  
pp 42-46

TEXT OF ENGLISH ABSTRACT: With the steady development of socialist construction in China, different kinds of industrial enterprises have been successively established, the streets in cities have been increasingly crowded with traffic, and consequently the intensity of noise has gradually risen. For the sake of eliminating the interference of noise with the people's life and production, the leading authorities concerned of some cities have adopted regulations on the reduction of noise in recent years. And one of the effective measures is tree-planting for greenery on a planned way.

In accordance with Chairman Mao's instruction, "Make the whole country green," Nanking has carried out a great deal of work in greenery construction since Liberation. Different kinds of streets with a total of several hundred kilometers in length have been basically made green. The area of sapling gardens, stretches of forest, parks,

[continuation of CHIEN-CHU HSUEH-PAO No 2, Jun 77 pp 42-46]

as well as green spots among residential quarters, and the number of trees along sidewalks, are respectively several times, dozen of times, even one hundred times more than before Liberation. The rapid development of greenery construction has exerted its special multi-purpose effect on purifying air, improving climate, beautifying environment as well as reducing noise.

The present article, on the basis of results of surveys on the main streets, makes a preliminary analysis and discussion on the effect of greenery, including green belts, hedgerows and several kinds of plant-arrangement, on the reduction of noise in cities.

This article examines data from the Institute of Physics of the Chinese Academy of Sciences, Peking Labor Hygiene Research Institute, T'ung-chi University, Nanking Steam Turbine Generator Plant, Nanking University and Nanking Engineering College organized by the Environmental Protection Office of Nanking Municipality. Included are three tables, four photographs and fifteen figures.

AUTHOR: None

ORG: Architectural Design Institute, Academy of Architectural Engineering, State Capital Construction Commission

TITLE: "Selected Architectural Design Data Sheets (3) -- Awning Plates at Exterior Wall of a Machinery Plant"

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 2, Jun 77 p 47

ABSTRACT: This design data sheet covers the fittings for awning plates, different shapes of prefabricated plates, asbestos tiles and galvanized-iron-covered awning plates with wooden foundation. The vertical distance between two awning plates should be determined by the angle at which the rain falls, sunshine and ventilation. The rain angle is the angle between the direction of the rain and the horizontal. When the wind speed is less than 9 meters per second, the rain angle is 40 to 60 degrees. Holed walls with windows were installed beneath awnings. Included are eight figures.

AUTHOR: None

ORG: None

TITLE: "Tz'u-p'ing, Center of Ching-kang Mountains and Pai-yun Hotel in Canton"

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 2, Jun 77  
pp front cover, back cover, inside front cover and inside back cover

ABSTRACT: The front cover photographs shows the town of Tz'u-p'ing in the heart of the Ching-kang Mountains. Four photographs on the inside front cover show, in numerical order, Chairman Mao's old residence at Tz'u-p'ing, the old site of the Red Army Training Group at Ning-kang in 1927, Mao's revolutionary activities exhibition hall at Ch'ang-kang Township (hsiang), and the Ching-kang Mountain Revolutionary Museum at Tz'u-p'ing. Two back cover photographs depict the exterior of the Pai-yun Hotel in Canton and its lobby. The inside back cover photographs show the dining saloon, standard and suite guest rooms and the inner courtyard of the Pai-yun Hotel. There is a total of 12 photographs.

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CSO: 4009

ACTA BOTANICA SINICA

AUTHOR: None

ORG: Three-in-one Combination Experimental Group of Peking Ch'ung-wen Vegetable Station and Peking Institute of Botany, Chinese Academy of Science

TITLE: "Studies on Tomato Storage I. The Effect of Controlled Atmosphere On Some Physiological Processes of Stored Tomatoes"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] in Chinese Vol 18, No 4, Dec 76 pp 278-283

TEXT OF ENGLISH ABSTRACT: Tomatoes were stored in large polyethylene bags under controlled atmosphere. When the O<sub>2</sub> content was kept 2-4 percent, CO<sub>2</sub> below 5 percent and Cl<sub>2</sub> was maintained at 1500 ppm by injecting the appropriate quantity of chlorine into each bag at one-day interval, tomato fruits could be stored up to 45 days with normal color, quality, and flavor, and percentage of good fruits attained 84-88 percent at 11-13 degrees C. Because of lower temperature and oxygen partial pressure, the rate of respiration of tomatoes was decreased and climateric peak was obviously delayed. Therefore, senescence and ripening of tomato fruits were also deferred.

[continuation of CHIH-WU HSUEH-PAO No 4, Dec 76 pp 278-283]

In this paper, the relation between the rate of respiration and different oxygen partial pressure, the contents of pigments, reduced sugar, total acidity, total soluble solid and temperature of storage were also investigated.

AUTHOR: None

ORG: Scientific Research Station, Hsiao-ts'un Brigade, Ta-k'ou People's Commune, Yen-shih County, Honan and Speciality of Plant Physiology and Biochemistry, Practice Group, Class of 1973, Department of Biology, Peking University

TITLE: "Studies on Photorespiration in Several Different Varieties of Wheat by Biochemical Methods"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] in Chinese Vol 18, No 4, Dec 76 pp 293-299

TEXT OF ENGLISH ABSTRACT:

Photorespiration in photosynthetic cells proceeds through the glycolate pathway. We assumed that the accumulation of glycolate, the glycolate oxidase activity and the net photosynthetic rate may be used as criteria of photorespiration activity for different crop varieties. Simple method for quantitative determination of glycolate and estimation of glycolate oxidase activity in the functional leaves of wheat were described in this report. The preliminary results showed that differences do exist in the amount of glycolate accumulated, the activity of glycolate oxidase and the net photosynthetic rate in different varieties of wheat, especially during the milk stage. These differences seemed to be correlated with the high yield behaviour of different wheat varieties.

[continuation of CHIH-WU HSUEH-PAO Vol 18, No 4, Dec 76 pp 293-299]

These simple methods described in this paper may be of some value in the selection of high photosynthetically efficient varieties in crop plants.

AUTHOR: None

ORG: Laboratory of Cultivation, Shantung Institute of Peanut

TITLE: "Research on the Cultivation of High Yield Peanuts"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] in Chinese Vol 18, No 4, Dec 76 pp 300-305

TEXT OF ENGLISH ABSTRACT: We have carried out experiments to produce high yield of peanuts in the way combining with the mass movement for four years. We established one hundred and twenty plots of high yield about 600-800 chin per mou. Number of plants per mou, number of pods per plant and number of pods per chin are factors constituting high yield. The index of each factor constituting high yield is different in different varieties. The most important among these three factors is the number of pods per chin. For the purpose of stabilizing the number of pods per chin, it is necessary to bring 2-seeded pods up to 60-90 percent and full pods up to 50-80 percent. The main techniques are to enhance the development of the first and second pairs of lateral branches of peanuts to the greatest extent and to hasten the earlier emergence of the secondary branches in order to increase the percentages of fruit setting and of full fruits. The main measures of high yield culture are as follows: loosen the soil through deep cultivation

[continuation of CHIH-WU HSUEH-PAO Vol 18, No 4, Dec 76 pp 300-305]

and soil improvement; regulate the ratio of nutrients in soil by phosphorus dressing; regulate the contradiction of light competition between individual plant and plant population by rational close planting and balance the contradiction between the vegetative growth and reproductive growth by proper cultural measures including stunting, promoting and regulating the growth of plants.

AUTHOR: None

ORG: Research Group on "High and Stable Yield and Low Cost" of Wheat Production, Hsu-ch'ang College of Agriculture, Honan

TITLE: "Managing Plant Development According to the Rule of the Yield Formation Factors in Wheat"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] in Chinese Vol 18, No 4, Dec 76 pp 306-311

TEXT OF ENGLISH ABSTRACT:

On the basis of studying and generalizing the production experiences of the mass in the last two years, suggestions are made for the rational population structure on different cultivars, different levels of the yield and different stages of growth and development. According to the rule of the yield formation factors, principles for managing plants based on growth vigors and growth features were summarized as follows:

1. Based on the relation of co-extension between tillers and leaf blades of main stems; and based on the period of developing into two extreme directions of tillers, plants were managed, so that adequate tillers and stout seedlings were promoted, this insures a quite high rate of effective tillers that adequate number of ears can be obtained.

[continuation of CHIH-WU HSUEH-PAO Vol 18, No 4, Dec 76 pp 306-311]

2. Based on growth vigors and growth features of the 9th, 10th, 11th leaf blades which emerged near the shooting period, management techniques for promotion and control of the seedlings were determined, so as to decrease floret degeneration and increase seed set.

3. Master the rules of dry matter accumulation in seed of plants with different growth vigors and increasingly manage plants in the latter stage, to prevent excessive vegetative growth and early ageing, so that grain weight can be increased.

AUTHOR: None

ORG: Agricultural Bureau, Ch'i-tung County, Kiangsu

TITLE: "The Way to Gain High and Stable Yield of Cotton in Large Area"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] in Chinese Vol 18, No 4, Dec 76 pp 312-315

TEXT OF ENGLISH ABSTRACT: Since 1964, our country carried out the movement "In agriculture, learn from Tachai," we have obtained high and stable yield of ginned cotton at the level of 130-140 chin per mou year after year. In 1975, though our county was hit by severe natural disaster, we overcame it, won a good harvest, obtained 161 chin of ginned cotton per mou.

Our main experiences are summarized as follows:

1. Close planting. The planting density is about 6500 plants per mou.
2. Field management. The principle of fertilizer application is to promote seedlings, stabilize buds and gain more bolls. We applied fertilizer 25-30 chin per mou of which over 20 chin fertilizer per mou was applied at flowering and bolling period.

[continuation of CHIH-WU HSUEH-PAO Vol 18, No 4, Dec 76 pp 312-315]

3. Grasp prevention of *Tetranychus bimaculatus* Harvey and *Pectinophora gessypiella* Saunders for high yield and good quality of cotton.

AUTHOR: None

ORG: Sinkiang Institute of Biology, Pedology and Psammology

TITLE: "Changes in Respiratory Intensity and Sugar Content in Hami Melons During Ripening"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] in Chinese Vol 18, No 4, Dec 76 pp 316-322

TEXT OF ENGLISH ABSTRACT:

The development of Hami melon fruits is related closely to its respiration. Hami melon fruits grow rapidly during the early stage of fruit development, its respiratory intensity is high and the sugar content low. The respiratory intensity decreases gradually with development of fruits and the sugar content increases. When the fruit reached maturity, the respiratory intensity increased again. The respiratory intensity decreased after harvest and storage materials underwent destructive metabolism. Among the Hami melon varieties, with regard to the entire course of development, the respiratory intensity of the "Mizgan" is lower than of "Hongsentry", hence the former is favoured for storage. The Hami melons supplied directly to the market for sale ought to be harvested after complete maturity, while those intended for storage and distant transportation should be harvested before complete maturity.

AUTHOR: None

ORG: Laboratory of Phytotron, Shanghai Institute of Plant Physiology

TITLE: "The Influence of High Temperature on the Flowering and Fruiting of Early Rice and Its Control II. The Influence of High Temperature on the Flowering-Fruiting of Early Rice During the Flowering Stage"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] in Chinese Vol 18, No 4, Dec 76 pp 323-329

TEXT OF ENGLISH ABSTRACT:

High temperature injures flowering-fruitletting of early rice in the productive practice. This experiment was carried out in phytotron to study the influence of the different degrees of high temperature on the flowering-fruitletting process of early rice during the flowering stage.

It was found that with the increase in temperature the peak of daily flowering appeared earlier; the maximum rate of daily flowering, the rate of the total number of flowering, the rate of bursted anther and the number of filled grain decreased; the rates of unopened floret, night-opened floret and unfilled grain increased.

The most sensitive stage of a floret to high temperature is just before flowering and its resistance to high temperature greatly strengthens at the time immediately after flowering and pollination when the elongation of ovary becomes visible.

[continuation of CHIH-WU HSUEH-PAO Vol 18, No 4, Dec 76 pp 323-329]

The cause of high temperature injury is due to the destruction of fertilization process resulting in the formation of empty grains.

9129

CSO: 4009

AUTHOR: CHANG Ssu-chou [1728/3123/3116]

ORG: Party Committee Secretary of Mien Feng Commune, Chien Yang Hsien, Szechwan

TITLE: "Take Class Struggle as the Key Link and Persist in the Work on Distant Crossing"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] in Chinese Vol 18, No 4, Dec 76 pp 330-333

TEXT OF ENGLISH ABSTRACT:

I am a peasant. In order to increase the yields of cotton and grain and breed new varieties, I began to work on distant crossing of cotton in 1957. The sexual hybridization was conducted by using the cotton and castor bean plants possessing the characters such as strong adaptability, short branches of fructification, better fructifying ability, resistance to insect pest and drought and cold injury. In 1962, I obtained the new variety "Mine-Nung No. 14" which had the characteristics of both cotton and castor bean plants. Later the petwheat was also obtained. Now the two new varieties of cotton and wheat have been put on production, and well received by the poor and lower-middle peasants.

[continuation of CHIH-WU HSUEH-PAO Vol 18, No 4, Dec 76 pp 330-333]

In the twenty years engaged in research on distant crossing, I was constantly opposed by class enemy and the bourgeoisie in the party. The bourgeois specialists and "authorities" also said "That I was a 'bumpkin', did not know science", "The castor-cotton was false" etc. But in accordance with the need of production, I did away with all fetishes and superstitions, emancipated the mind, followed Chairman Mao's teaching of the primary standpoint of practice, upheld the philosophy of struggle, finally obtained certain results. I consider that all genuine knowledge originates in direct experience, and both the theory and practice of distant crossing have the wide prospect for future development.

AUTHOR: NONE

ORG: Research Group of Kaoliang-Rice Hybrid, Institute of Agricultural Science, Hupei

TITLE: "Practice and Understanding of Selection and Breeding on Kaoliang-Rice Hybrid (Type A)"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] in Chinese Vol 18, No 4, Dec 76 pp 335-339

ABSTRACT: This paper reports on the experience in breeding hybrid kaoliang-rice (type A). The economical, morphological and cultural characteristics of the hybrid are described. Kaoliang-rice (type A) was bred in 1971-1975. F<sub>1</sub> showed a great deal of morphological changes. F<sub>2</sub> showed a lot of hybrid vigor with a certain degree of segregation which appeared to have become stabilized in F<sub>3</sub>. However, F<sub>4</sub> again showed wild segregation. Stabilization was completely established in F<sub>5</sub> through F<sub>7</sub>. Morphologically, kaoliang-rice (type A) is compact with a strong and flexible stem. It is fertile and lodging resistant. It yields on the average 150-200 grains per head. Preliminary results showed that hybrid vigor was enhanced when the planting density was not too high.

AUTHOR: None

ORG: Tsang Chow Regional Institute of Agricultural Science, Hopei

TITLE: "The Practice of Hybridization Between Millet and Kaoliang"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] in Chinese Vol 18, No 4, Dec 76 pp 340-342

ABSTRACT: The experimental hybridization between millet and kaoliang was initiated in 1972. This paper reports on the segregation and variation of the early generations. Based on data gathered in 1972-1973, after pollination, seed production and germination were roughly 40 percent and 10 percent respectively. Several combinations of parents were experimented. For the case of Shuang-Ching-Ku (♀) x Li-Shih-Huang (♂), variations of F<sub>3</sub> and F<sub>4</sub> are tabulated. F<sub>4</sub> has tall stems and large heads. However, it has a serious segregation problem and lacks lodging resistance. Some general problems in intergenus hybridization are discussed.

AUTHOR: KO Ko-fang [2688/2706/2397]

ORG: NONE

TITLE: "How to Overcome the Incompatibility of Distant Crossing"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] in Chinese Vol 18, No 4, Dec 76 pp 343-344

ABSTARCT: Incompatibility before fertilization may be overcome by: (1) immunological or biochemical method, (2) physical chemical method, (3) genetics, (4) mechanical method, and (5) physiological method. The rate of seed production in distant crossing may be increased by: (1) embryo culture, (2) minimization of the difference between the number of chromosomes, and (3) control of environmental conditions and physiological conditions of the plants. Hybrid sterility of F<sub>1</sub> may be overcome by back crossing and chromosome doubling techniques. Non-fusion reproduction and chromosome doubling may be used to control segregation.

3057

CSO: 4009

JOURNAL OF BOTANY

AUTHOR: None

ORG: Research Group on Flowering of Tea Trees, Chu Hsien Branch, Anhwei Institute of Agricultural Sciences

TITLE: "On Controlling of Flowering of Tea Trees"

SOURCE: Peking CHIH-WU TSA-CHIH [JOURNAL OF BOTANY] No 2, Apr 77 pp 3-4

ABSTRACT: Different concentrations of ETHREL were used to spray tea trees in an experiment to thin out flowers and buds. It was discovered after much experimentation that good results could be obtained with concentrations in the range of 750-1000 ppm. The highest rate of thinning obtained was 90 percent. However, about 15-20 percent of the leaves, especially the young leaves, were also thinned out. This difficulty was overcome by spraying a mixture of gibberellins of 30 ppm concentration of ETHREL of 1000 ppm concentration. The rates of thinning for flowers and leaves were 90 percent and 3-4 percent respectively.

AUTHOR: None

ORG: Shao Yang Regional Department of Agricultural Sciences, Hunan

TITLE: "Colored Thin Plastic Films are Good for Rice Seedbeds"

SOURCE: Peking CHIH-WU TSA-CHIH [JOURNAL OF BOTANY] No 2, Apr 1977 pp 9-10

ABSTRACT: An experiment on using colored thin plastic films to cover rice seedbeds was carried out in 1973-1975. The results are as follows: (1) Blue plastic films gave best results both in the number of seedlings produced and the quality of the seedlings. (2) Blue plastic films increased both the tillering rate and the heading rate. (3) Blue plastic films hastened maturity by 2 days. (4) Blue plastic films resulted in an average grain yield of 864.3 chin/mou, 5.4 percent more than clear plastic films. Two possible reasons for the superior results obtained with blue films are: (1) Blue films produced higher temperature in the covered seedbed than other films. (2) The filtering effect of blue films was beneficial to the seedlings.

AUTHOR: None

ORG: Anther Culture Group, Department of Genetics, Northwestern Institute of Botany

TITLE: "Low Temperature Treatment of Seedlings of Haploid Wheat"

SOURCE: Peking CHIH-WU TSA-CHIH [JOURNAL OF BOTANY] No 2, Apr 77 p 13

ABSTRACT: Seedlings of haploid wheat grown from anther culture are generally small and weak. They have difficulty in surviving the hot summer season when they are transplanted in June. The objective of the low temperature treatment experiment was to try to find some means to harden the seedlings and to increase the survival rate. When anther plants reached 2.5-4 cm in height, they were placed in refrigerated boxes which were kept at 5-7 degrees C at night. In this fashion, the seedlings could be kept in the test tubes for more than two months and the transplantation could be postponed until after the hot summer. An added benefit of the low temperature treatment was the increased doubling of chromosomes in haploids.

AUTHOR: NONE

ORG: An Chi Technology Service Section, Chinese Academy of Agricultural and Forestry Sciences

TITLE: "On Flowering of Bamboo and Restoration of Bamboo Forests"

SOURCE: Peking CHIH-WU TSA-CHIH [JOURNAL OF BOTANY] No 2, Apr 1977 pp 16-17, 37

ABSTRACT: Bamboo is a perennial graminaceous plant with an average life span of roughly 10 years. It flowers only once and dies shortly after flowering and fruiting. Experimental investigations showed that when the plants in a bamboo forest could absorb sufficiently large amounts of nitrogen, water and minerals from the soil, their vegetative growth was strong and their reproductive growth was suppressed. Consequently, the probability of flowering was reduced and some bamboo forests could grow for as long as 200 years. It was also discovered that when a bamboo forest began to flower, if all the flowering plants without leaves were cut down while keeping those with leaves, then the forest could be restored in 2-5 years by properly cultivating and fertilizing the soil. This restoration process is 5-6 times faster than the natural process.

AUTHOR: LU Wen-liang [7120 2429 2733]

ORG: NONE

TITLE:"The Secret of Growing a Plant From a Pollen"

SOURCE: Peking CHIH-WU TSA-CHIH [JOURNAL OF BOTANY] No 2, Apr 1977 pp 38-41

ABSTRACT: A step-by-step explanation of how a plant can be grown from a grain of pollen is presented. Starting from an anther culture, there are two methods of growing a plant, by inducing a seedling from a callus or by growing a seedling from embryo-like tissues. The recipes for several commonly used culture media for anther cultures are presented. Successfully tested culture media for tobacco, rice, wheat and corn are described. Several technical terms such as anther, pollen, and chromosome multiplier are defined.

AUTHOR: NONE

ORG: NONE

TITLE:"Introduction of the South Tea to the North"

SOURCE: Peking CHIH-WU TSA-CHIH [JOURNAL OF BOTANY] No 2, Apr 1977 p 41

ABSTRACT: Since 1966, south tea has been successfully introduced to Shantung. In 1976, the total acreage reached 104,378 mou, most of them on hilly land or sandy plains. This successful experimentation disproved the old saying that tea could not be grown north of northern Kiangsu. Its significance in tea production is far reaching.

AUTHOR: NONE

ORG: NONE

TITLE: "A High Quality and High Yield Hybrid Corn"

SOURCE: Peking CHIH-WU TSA-CHIH [JOURNAL OF BOTANY] No 2, Apr 1977 p 44

ABSTRACT: The Hui-ming Regional Bureau of Agricultural Sciences began a project on improving the quality of hybrid corn in 1969. Two high quality hybrid varieties, Po-tsa No. 1 and Po-tsa No. 3 were developed. Experimental results in 1974 showed that Po-tsa No. 1 and Po-tsa No. 3 yielded 690 chin/mou and 660.5 chin/mou respectively. The tannic acid content was found to be about 1/10 of that of other hybrid varieties, making the two new varieties people's favorite. Both varieties demonstrated the usual hybrid vigor, but were somewhat weak in tillering.

AUTHOR: None

ORG: None

TITLE: "Contributions of the Castor-Oil Plant"

SOURCE: Peking CHIH-WU TSA-CHIH [JOURNAL OF BOTANY] No 2, Apr 77 p 30

ABSTRACT: The castor-oil plant is economically very important to us. The oil content of its seeds is as high as 45 percent. It is a high quality oil with very stable characteristics between -8 degrees C and 600 degrees C. It is widely used as a lubricant in airplane, ship and automobile engines. It is also used as a laxative, emulsion for agricultural chemicals and soap component. Castor-oil bean cake is a good domestic animal feed. The leaves are used for raising castor-oil silk worms.

3057

CSO: 4009

PHYSICS

AUTHOR: None

ORG: Chinese Academy of Science, Institute of Physics

TITLE: "Observation Of Annular Solar Eclipse From Mountain Areas"

SOURCE: Peking WU-LI [PHYSICS] Vol 6, No. 1, Feb 77 pp 7-10

ABSTRACT: On 29 April of last year, a rare annular solar eclipse took place in the south-west border region of China. A 26-man observation team was organized and tasked to carry out independent observations from the 5-6000 meters. K'un-lun mountains. Under the sponsorship of the central and local party members and with the help of the People's Liberation Army, the team overcame a number of practical difficulties and succeeded in taking educational movies and scientific photographs of the event. They also recorded abnormal phenomena in gravity during the period of the eclipse using Chinese-made instruments. The success of this observation represented another major contribution to the advancement of basic scientific knowledge.

AUTHOR: None

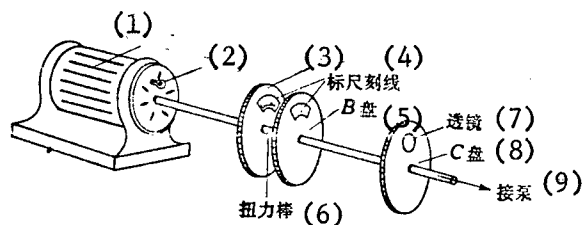
ORG: Chinese Science and Technology University Experimental Educational Reform Group for Optics

TITLE: "An Optical Method Of Revealing The Torsional Deformation Of A Rotating Body -- The Design Of An Optical Torsional Power Meter"

SOURCE: Peking WU-LI [PHYSICS] Vol 6, No 1, Feb 77 pp 11-13

ABSTRACT: An optical power meter has been designed to measure the mechanical power of a water pump. The device measures the angular deformation of a torsion rod fastened to the rotating pump, and calculates the torque and mechanical power which are proportional to the angular deformation. In this article, the structure of the instrument is described (shown in Fig. 1), and the following design considerations are discussed: 1) improving the image resolution by increasing the amplification factor of the lenses; 2) specifying the requirements of the light source; and 3) the use of a system of stationary lenses to restore brightness of the image. It is pointed out that the power meter has been successfully tested on both ordinary pumps (6000 rpm or less) and on high speed pumps (20,000 rpm or less).

Fig. 1



- key: 1. motor  
2. light source  
3. A disc  
4. scale  
5. B disc  
6. torsion rod  
7. lenses  
8. C disc  
9. to pump

AUTHOR: YANG Yu-lin [2799 3768 2651]

ORG: Peking Electronic Tube Factory

TITLE: "Dialectical Materialism Revives The Dilapidated Equipment"

SOURCE: Peking WU-LI [PHYSICS] Vol 6, No 1, Feb 77 pp 17-18

ABSTRACT: Under the guidance of Marx' theory of dialectic materialism, the workers of the Peking Electronic Tube Factory took the initiative to repair dilapidated electronic test equipment to meet the increased production demands. After several months of dedicated efforts, three apparently unusable multipurpose electronic tube testers were successfully repaired and placed into operation. This effort not only saves money for the country but also provides new experience in trouble shooting and repair for the workers.

AUTHOR: CHU Ai-ch'ing [2612 1947 0615]

ORG: Peking Electronic Tube Factory

TITLE: "Maintain Quality Through Dialectics"

SOURCE: Peking WU-LI [PHYSICS] Vol 6, No 1, Feb 77 pp 18-20

ABSTRACT: As a glass tube inspector in the Peking Electronic Tube Factory, the author had the opportunity to enroll in the factory sponsored class on "natural dialectic methods." By applying the method of dialectic materialism, he was able to determine the exact cause of certain deformation in the glass tubes and correct it accordingly. From this experience, he came to the realization that dialectic methods can be mastered by anyone participating in the three major revolutions: class struggle, production struggle, and scientific experimentation.

AUTHOR: CHIANG Lien-hui [3068 5114 6540]

ORG: Peking Electronic Tube Factory

TITLE: "Ill Effects of Metaphysics and One-Sideness as Illustrated by Certain Examples in the Development of Semiconductor Devices"

SOURCE: Peking WU-LI [PHYSICS] Vol 6, No 1, Feb 77 pp 20-22

ABSTRACT: The subjective and metaphysical philosophy of the "gang of four" is criticized as a major stumbling block to China's scientific development. It is emphasized that the followers of the gang of four who are spreading the ill effects of metaphysics must be stopped. To illustrate his point, the author presents his own testimony of applying the method of dialectic materialism in trouble shooting the cause for repeated failures of a high frequency power transistor in a piece of communications equipment. He suggests that all workers in the scientific field must be proficient with the method of dialectics in order to avoid the traps of metaphysics.

AUTHOR: None

ORG: Chinese Academy of Science, Lanchou Institute of Modern Physics

TITLE: "Application Of Nuclear Science And Technology In Agriculture"

SOURCE: Peking WU-LI [PHYSICS] Vol 6, No 1, Feb 77 pp 23-25

ABSTRACT: Two experiments involving the application of nuclear science and technology in agriculture are described: 1) the radiation treatment of wheat seeds using high energy neutron beams generated from a 600 kv high voltage multiplier; 2) the radiation treatment of silkworm eggs using radium-beryllium isotope neutron beams. The problem of selecting the optimum radiation flux to achieve maximum stimulation without damage to the seeds or eggs is discussed. The procedure of measuring the neutron flux and the method of treatment are illustrated. Photographs of the experimental set-ups of the high energy radiation treatment and the radium-beryllium neutron source are also presented. It is concluded that the treated silkworm eggs produced an improved generation of silkworms and the treated wheat seeds resulted in favorable mutation.

AUTHOR: None

ORG: Peking Chaoyang District, Bureau of Metrology

TITLE: "Encouraging Results in the Use of Magnetically Treated Water in Agriculture"

SOURCE: Peking WU-LI [PHYSICS] Vol 6, No 1, Feb 77 pp 26-27

ABSTRACT: A controlled experiment has been conducted by the Chaoyang District Bureau of Metrology to study the effect of applying magnetically treated water to rice crops and wheat crops. The results indicated a 10 percent increase in rice production and a 14-26 percent increase in wheat production. It is postulated that the improvement was due to increased air filtration, increased bacterial activities and chemical reactions in the soil after treatment with magnetized water. Future experiments on wheat crops are planned to verify the repeatability of this phenomenon and to study the conversion processes of nitrogen potassium, and phosphor in the soil.

AUTHOR: None

ORG: Kuantung Province, Bureau of Standards and Metrology

TITLE: "Simple Apparatus For the Magnetic Treatment of Water In Agriculture And Medicine"

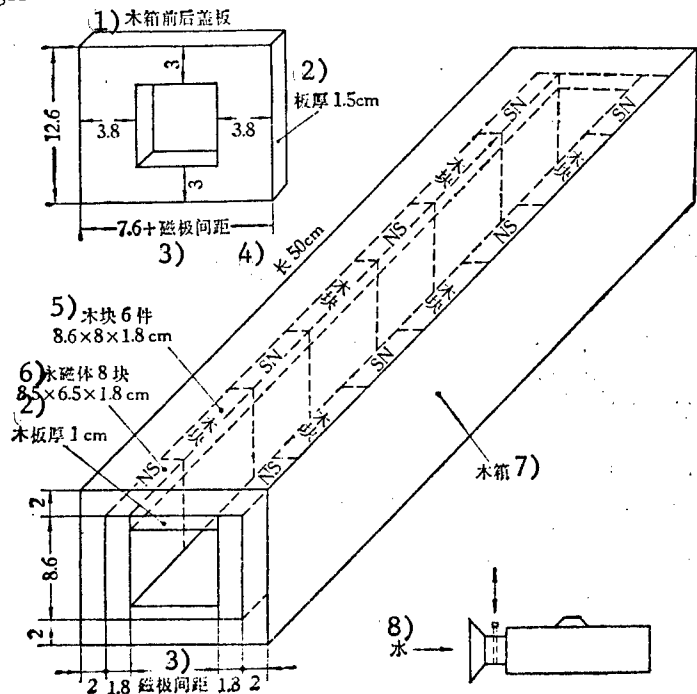
SOURCE: Peking WU-LI [PHYSICS] Vol 6, No 1, Feb 77 pp 27-28

ABSTRACT: "Magnetized water" has been shown to be effective in stimulating the germination and growth of certain agricultural crops and in curing patients with urinal stones. This article introduces two simple apparatus which are designed to treat water magnetically for agricultural and medical applications. In both apparatus, water is passed through a magnetic field generated by strontium ferroxide permanently mounted in a wooden structure. The external shape of the agricultural water magnetizer is shown in Fig. 1, and the medical water magnetizer is shown in Fig. 2.

[Continuation of WU-LI Vol 6, No 1, Feb 77 pp 27-28]

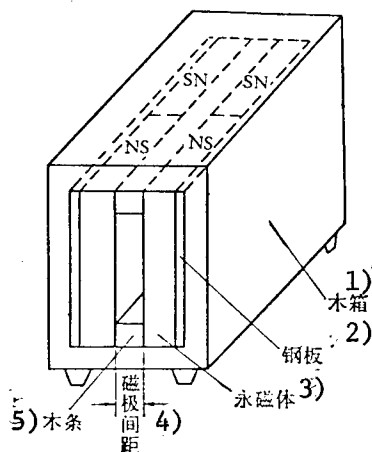
Fig. 1 Agricultural Water Magnetizer

- key: 1. cover plate  
2. thickness  
3. distance between magnets  
4. length  
5. wood blocks(6)  
6. permanent magnets(8)  
7. wooden box  
8. water



[continuation of WU-LI Vol 6, No 1, Feb 77 pp 27-28]

Fig. 2 Medical Water Magnetizer



- Key: 1. wooden box  
2. steel plate  
3. permanent magnets  
4. distance between magnets  
5. wooden strip

AUTHOR: None

ORG: Kuantung Province, T'aishan County Bureau of Standards and Metrology, Tuan-feng Middle School

TITLE: "How We Conducted Experiments On Using Magnetized Water to Accelerate the Growth of Rice Crops"

SOURCE: Peking WU-LI [PHYSICS] Vol 6, No 1, Feb 77 pp 28-29

ABSTRACT: A series of controlled experiments were conducted to study the effects of treating rice crops with magnetized water. Specifically, these experiments consisted of: 1) treating seeds and seedlings with magnetized water and comparing the rate of germination and the quality of seedlings with those of untreated rice crops; 2) irrigating treated rice crops with ordinary water; 3) irrigating treated rice crops with magnetized water; and 4) treating the seeds and seedlings with 3000-Gauss magnetized water and irrigating the crops with 1000-Gauss magnetized water. The results indicated that the treated seedlings had a higher rate of multiplication and the treated crops had an increase in yield ranging from 2.45 percent to 13.18 percent.

AUTHOR: LIU Chen-hsing [0491 2182 5281]

ORG: Chinese Academy of Science, Institute of Physics

TITLE: "Rare Earth Metals and Their Applications in Superconductivity"

SOURCE: Peking WU-LI [PHYSICS] Vol 6, No 1, Feb 77 pp 36-39 and 10

ABSTRACT: Rare earth metals are widely used in defense technologies, in steel, petroleum, machinery and ceramic industries, as well as in agriculture. Since the liberation, the production of rare earth metals in China has increased many fold. Under normal pressure, the superconductivity characteristics of rare earth metals are not apparent, but they become very pronounced under high pressure conditions. A small amount of rare earth metals can also be mixed with other alloys to increase their critical temperature, critical magnetic field, and critical current density. During the third National Conference on the Promotion of Rare Earth Metals in 1975, it was declared that maximum efforts would be made to develop the rare earth resources in this country in order to achieve independence and self reliance.

AUTHOR: HUANG Wei-hua [7806 4850 5478]

ORG: Pao-t'ou Steel Company, No 8 Middle School

TITLE: "Criticism of the Philosophical Thinking of W. Heisenberg"

SOURCE: Peking WU-LI [PHYSICS] Vol 6, No 1, Feb 77 pp 40-43

ABSTRACT: This article presents a critical review of a book by W. Heisenberg, "Physics and Philosophy". Heisenberg's philosophical thinkings are criticized as being contradictory to F. Engels theory of natural dialectics. Specifically, arguments are presented to reject the following viewpoints of Heisenberg: 1) the non-existence of objective matter; 2) the non-dependence of human thoughts and knowledge on the external world; 3) the concept of "complimentary principle" to interpret the wave-like and particle-like characteristics of microscopic matters; 4) the denial of causality in microscopic phenomena; and 5) the hypothesis of a universal field equation which governs all physical phenomena and the search for "fundamental element" that is the building block for all matters.

AUTHORS: TAI Wen-sai [2071 2429 6357]  
LU Tan [7120~~1~~\* ]  
HU Fu-hsing [5170 0154 5281]

ORG: Nanking University, Nanking Communications Equipment Factory, and  
Tzu-chin-shan Observatory

TITLE: "Microscopic, Macroscopic, and Cosmoscopic Processes"

SOURCE: Peking WU-LI [PHYSICS] Vol 6, No 1, Feb 77 pp 44-48

ABSTRACT: In this article, the authors discuss the basic differences in the physical interpretation of microscopic, macroscopic, and cosmoscopic matters and processes. It is pointed out that macroscopic matters and laws of motion are the main objects of study in classical physics whereas modern physics has extended the realm of study into microscopic and cosmoscopic phenomena. It is postulated that the atom and the high energy particles are the two fundamental elements in the microscopic world; their relations with the molecule and nucleus are discussed. It is also postulated that the planet, the star, and the galaxy are the three fundamental elements in the cosmoscopic world and that the gravitational force is the primary controlling force in the cosmoscopic universe. In addition, the main characteristics of the galaxies are also discussed.

AUTHOR: LIU Po-wen [0491 0590 2429]

ORG: Naning City, No 9 Middle School

TITLE: "The Meaning of Space-Time Concept in Physics"

SOURCE: Peking WU-LI [PHYSICS] Vol 6, No 1, Feb 77 pp 48-53

ABSTRACT: In this article, the theory of dialectic materialism is applied in the study of space-time concept in microscopic and macroscopic physics. In particular, the traditional concept of space-time continuum and its relationship to matter are interpreted from a materialistic viewpoint. New concepts in the space-time model are postulated to explain certain difficulties in quantum physics and the macroscopic structure of the universe. In addition, the transformation process between elements of the space-time continuum is also discussed.

AUTHOR: YEN T'ien-fang [0917 1131 2397]

ORG: K'ung-ming City, No 16 Middle School

TITLE: "On the Dialectical Laws of Mechanical Motion"

SOURCE: Peking WU-LI [PHYSICS] Vol 6, No 1, Feb 77 pp 53-56

ABSTRACT: The classical laws of mechanical motion are analyzed in terms of the theory of dialectic materialism. Specifically, the author proposes a new interpretation of the dialectical laws of motion which are basically consistent with Newton's laws of motion. In the new interpretation, space, time, mass, and force are admitted as the fundamental concepts in mechanics, and the following basic laws are postulated: 1) the law of conservation of momentum; 2) the law of fundamental contradiction of mechanical motion; and 3) the law of transfer of mechanical motion.

AUTHOR: CHAO Ch'uan-shu [6392 0278 2885]

ORG: "7.21" Workers College of the Huainan Coal Mine

TITLE: "Principle of Contradiction in the Laws of Mechanical Motion"

SOURCE: Peking WU-LI [PHYSICS] Vol 6, No 1, Feb 77 pp 56-58

ABSTRACT: Newton's laws of motion are reexamined in an attempt to remove their metaphysical and subjective implications. To illustrate his ideas, the author introduced the following basic concepts in mechanical motion: 1) the existence of internal contradiction of mechanical motion as a result of inertia and active changeability properties; 2) the existence of two different types of active changeability properties: changes between mechanical motions which are measured by momentum, and changes between mechanical motion and other forms of motion which are measured by kinetic energy; 3) the validity of the laws of conservation of momentum and conservation of kinetic energy, which jointly describe the conversion process of mechanical motion; and 4) the interpretation of force as an expression of the conversion process of mechanical motion, and the concepts of active and passive forces.

AUTHOR: KUAN Hung [7070 3163]

ORG: Canton Amateur School of Science and Technology

TITLE: "Is Inertia the Expression of Rest?"

SOURCE: Peking WU-LI [PHYSICS] Vol 6, No 1, Feb 77 pp 59-60

ABSTRACT: In this article, the author comments on a recent article by Li k'o [2621 2688] entitled "A Critique of Einstein's Concept of Motion". It is pointed out that Li's interpretation of Friedrich Engels' writings on motion and inertia was in error. Li's concept of inertia as an expression of rest and as an "opposite state of motion" was criticized. In addition, the author also points out the fallacy of some of Einstein's subjective and metaphysical viewpoints in the Theory of Relativity. It is emphasized that on the basis of dialectic materialist philosophy, one must accept the concept of both relativistic properties and the absolute nature of motion.

AUTHOR: WANG Hsing-chu [3769 5281 5282]

ORG: Hsuchou No 10 Middle School

TITLE: "The Birth and Development of the Theory of Relativity and Its Revelation"

SOURCE: Peking WU-LI [PHYSICS] Vol 6, No 1, Feb 77 pp 60-64

ABSTRACT: This is a tutorial article which reviews the birth of the Theory of Relativity and the stultification of Newtonian physics at the beginning of the 20th century. Specifically, the absolute space-time concept of Newtonian mechanics and its contradiction with electromagnetic theory are explained. The Lorentz transformation for space and time and Minkowski's concept of four dimensional space-time continuum which formed the foundation of the Theory of Relativity are described. Certain subjective viewpoints in the Theory of Relativity and Einstein's failure to apply dialectic materialist methods in developing his theory are criticized. In conclusion, it is pointed out that the Theory of Relativity provides the following revelations: 1) a natural scientist must be a follower of dialectic materialism; 2) any scientific theory must change with time and objective conditions; and 3) new truths can be discovered by continually reviewing and criticizing old truths.

3012

CSO: 4009

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