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PEOPLE'S REPUBLIC OF CHINA SCIENTIFIC ABSTRACTS

No. 172

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ARCHITECTURAL JOURNAL

AUTHOR: None

ORG: None

TITLE: "Captions to Photographs on Front Cover, Inside Front Cover, Back Cover and Inside Back Cover"

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 3, Oct 76 pp front cover, inside front cover, back cover and inside back cover

ABSTRACT: The front cover photograph shows the Peking Long Distance Telephone Building. Photographs on inside front cover depict apartment buildings (two stories, four stories and five stories) at the Ta-ch'ang Market Town, Nanking Municipality. Back cover photographs show urban construction in Changsha Municipality. The upper left photograph is of a primary school classroom building. The upper right photograph shows a teahouse on a peak of Yueh-lu Mountain, a famous resort. The bottom photograph shows new buildings on hills west of Hsiang River Bridge, at Changsha.

AUTHORS: MO YUNG [5459 1661]
LI FENG-CHU [2621 7685 5053]

ORG: Both of Kansu Provincial Surveying and Architectural Designing Institute

TITLE: "Investigation and Discussion on Design of Medium- and Small-Sized Forging Workshops in Lanchow Area"

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 3, Oct 76 pp 5-7 & attachment 2

TEXT OF ENGLISH ABSTRACT: Spurred on by the Cultural Revolution, the construction of industry in Lanchow region has been developing rapidly, and a large number of medium- and small-sized forging workshops have been set up in recent years. The engineering and designing personnel, on the basis of practice, made preliminary investigations on 70 medium- and small-sized forging workshops in this region. The worker-peasant-soldier students and revolutionary teachers of the Lanchow University, persisting in the orientation of open-door schooling, carried on surveys about the oscillation in the foundations of 30 forging hammers. The present article offers some suggestions about the design of forging workshops as follows:

[continuation of CHIEN-CHU HSUEH-PAO No 3, Oct 76 pp 5-7 & attachment 2]

(1) Investigations show that, even though the amplitude of oscillation in the foundations of medium- and small-sized forging hammers is quite small, its influence on the surrounding buildings cannot be neglected. The general layout should be so designed as to make the forging workshops have an adequate distance from the workshops and installations which need anti-oscillation.

(2) In designing the architectural section, attention should be paid to rationally deciding the span and height of the forging workshop, appropriately arranging the furnaces and other installations, and creating favorable conditions for having good draft in summer and maintaining an adequate warm temperature in winter. In the plan there should be a place available to the workers for rest. The article has a discussion on four plan schemes, including single-spanned, double-spanned and multi-spanned.

(3) Structurally common type of construction, such as wooden trusses and brick piers, can be used in the small forging workshops because the influence of oscillation is negligible. In selecting the structural members for the medium-sized workshops, the factor of oscillation should be considered. Pre-stressed concrete trusses and roof-slabs

[continuation of HHIEN-CHU HSUEH-PAO No 3, Oct 76 pp 5-7 & attachment 2]

as well as other new types of construction should be used for saving steel.

The article also discusses the foundation design of forging workshops in the loess region and the technical measures which should be taken in the architectural and structural design.

Included are eight diagrams and five tables.

AUTHOR: None

ORG: Office of Civil and Architectural Engineering, Design Bureau of
Machines and Industrial Buildings, the First Ministry of Machine Building

TITLE: "Problems of Designing Flat Skylights"

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 3, Oct 76
pp 8-10 & 19

ABSTRACT: The main advantage of flat skylights over rectangular skylights is the more than three times higher illumination efficiency in the former. Based on more than ten years' design experience, three fundamental problems needed to be solved in designing flat skylight: reducing solar radiation and glare, preventing rain seepage and rational illumination arrangement. The ventilation problem is solved if the multi-span plant building is chosen. In addition, there are special problems of condensing water, ice, snow and ash buildup. Briefly, this article shows one way of solving these problems. Two photographs and 17 diagrams are included.

AUTHOR: None

ORG: Architectural Physics Division, Department of Architectural Engineering, Tsinghua University

TITLE: "A New Method of Calculating Natural Daylights"

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 3, Oct 76
pp 11-15

ABSTRACT: This article is based on investigation and measurement of illumination in scores of plants. A large number of model experiments was carried out in laboratories to prepare new illumination calculation diagrams and tables. A new method of calculating natural daylights was arrived at. It has these features: (1) the calculations are much reduced by reliance directly on the illumination standard. (2) Diagrams and tables are adopted in finding the minimum illumination coefficients and thus determining window area, height and width. (3) The new method is precise enough to meet design requirements. One photograph, six diagrams and six tables are included.

AUTHOR: None

ORG: Research Laboratory, Peking Municipal Institute of Architectural Design

TITLE: "Study and Use of Waterproofing Joints in Prefabricated Large Wall Panel Buildings (Continuation)"

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 3, Oct 76 pp 16-19

ABSTRACT: This article is a second installment about the title subject. It describes design examples of waterproofing structures of several panel joints. Application experience is detailed. Under the structural waterproofing plan, joints cost only a fifth as much as in ointment filling of joints. Disadvantages in filling ointment at low temperature and in the rainy season can be avoided. Structural waterproofing treatment of joints depends closely on structure, insulation and installation. Labor procedures matched with hoisting speed should be used and construction should strictly conform to these procedures. One table and 23 diagrams are included.

AUTHOR: None

ORG: Fukien Provincial Architectural Standard Design Cooperative Group; Kiangsi Provincial Architectural Standard Design Office

TITLE: "Waterproofing Roofs of Hollow Reinforced Concrete Slabs Without Bituminous Felts"

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 3, Oct 76 pp 20-22

ABSTRACT: Waterproofing roofs of hollow reinforced concrete slabs without bituminous felts include rigid waterproofing and member waterproofing types. Compared to bituminous felt roofs, the waterproofing roofs described here are durable and convenient in maintenance. Raw materials are readily available. Construction cost can thus be cut 20 percent. The article describes the rigid waterproofing roofs of hollow reinforced concrete slabs and lateral hollow reinforced slabs waterproofing roofs. In Szechwan Province, the temperature below the hollow slabs in summer can rise above 40°C, so insulation is needed. Twenty five diagrams are included.

AUTHOR: None

ORG: East China Power Design Institute, Ministry of Water Conservation and Electric Power

TITLE: "Investigation and Discussion on Designing Multipurpose Workshops in Power Plants"

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 3, Oct 76 pp 23-26

ABSTRACT: Multipurpose workshops in a power plant began during the Great Leap Forward. Some of these multipurpose workshops were built during the initial construction and some others -- during plant expansion. From investigation, with proper arrangement the multipurpose workshop is a way of economizing plant floor space and is convenient for work operations and management because both workers and work objects will travel the shortest distance in a multipurpose building. Nine diagrams show the groupings of workshops, storerooms, offices, garages, mess halls and workers' service quarters.

AUTHOR: None

ORG: Civil Construction Specialty Section, Shensi Provincial Coal Mine Design Institute

TITLE: "Design of Coal Miners' Residential Quarters"

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 3, Oct 76 pp 27-33 & attachment p 1

TEXT OF ENGLISH ABSTRACT: Shensi Province has rich resources in coal. Since ancient times the laboring people have used different methods in exploiting it. But before liberation, the broad coal miners were cruelly oppressed by imperialism, the Kuomintang reactionaries and feudalism, and led an extremely miserable life. Since liberation, the coal miners have achieved their emancipation and become the masters of their ores. Not only the production conditions of the mines have been improved and safety measures increased, but the miners' living conditions have also been thoroughly changed and a large number of public welfare facilities set up for them, including housing, hospitals, schools, clubs, shops, bathrooms, nurseries and so on. Take the Wei-nan Mine as an instance. In recent years after the Cultural Revolution, it has put up new buildings totalling more than 500,000 square meters, among them about 440,000 square meters of housing. All this

[continuation of CHIEN-CHU HSUEH-PAO No 3, Oct 76 pp 27-33& attachment p 1]

has steadily raised the miners' living standards and create favorable conditions for developing the mining production.

Most of the coal mines in Shensi Province are scattered in mountainous regions remote from cities and towns, not easy of access and difficult in transporting building materials. In order to make the construction of the mines faster and better, the designers pay special attention to solving these problems as follows in planning the residential quarters:

(1) According to the principle of occupying less good farmland to aid agriculture, the use of wasteland, slopes and inferior farmland should be considered first. At the same time, the topography of the site should be fully utilized for the sake of saving land. When the gradient of the topography is steeper, buildings may be arranged in the form of terraces.

(2) To make the layout more rational, the residential quarters may be concentrated or separated according to actual conditions. In large-sized mines, where more population needs more land for construction, it is desirable to arrange the residential quarters in separate areas;

[continuation of CHIEN-CHU HSUEH-PAO No 3, Oct 76 pp 27-33& attachment p 1]

while in medium-and small-sized mines, where there is less population, the residential quarters may be concentrated in one area.

(3) The coal miners work heavily in the tunnels all the year round. Proceeding from the principle of being beneficial to production and convenient to the people, it is necessary to create better living environment for the miners as far as possible. The residential quarters should be near to the mines. As the mines are generally remote from cities and towns, a relatively comprehensive system of public welfare facilities should be set up in the course of construction.

(4) What with the difficulty of transportation in the mountainous areas, it is necessary to make full use of locally available materials, such as making bricks on the construction site, for cutting building cost. In several new coal mines, residences of two or three stories with brick-arch floors are generally erected. This results in saving a great number of steel bars and speeding up the tempo of construction. In some areas, stone is widely used as a main building material.

Included are 11 photographs and 13 diagrams.

AUTHOR: None

ORG: (1) Design Office, Huai-pei Mining Bureau
(2) Soochow Municipal Architectural Design Office
(3) Hsueh Municipal Architectural Design Office
(4) Hsueh Municipal Architectural Design Office
(5) Nanking Municipal Surveying and Designing Institute

TITLE: "Architectural Record: Commercial Buildings"

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 3, Oct 76
pp 34-37

ABSTRACT: This article has five parts: (1) Huai-hai Market is in Huai-pei Municipality, a new industrial city serving coal mining. The market is a three-story structure, 5653 square meters in floor space. (2) The South Gate Commercial Building at Soochow Municipality is less than 100 meters from an intercity bus depot and a wharf serving motorized passenger vessels. This is a six-story structure at the center and four stories at the south and north wings, with a floor space of 10,000 square meters. (3) The People's Store, part of the Hsueh Department Store Corporation, is three stories tall and 2138 square meters in floor space. At a corner of the building is a four-story warehouse. (4) Single-story stores at the intersection of West Huai-hai

[continuation of CHIEN-CHU HSUEH-PAO No 3, Oct 76 pp 34-37]

Road and North Jen-min Road in Hsueh Municipality sell food, tobacco, wine and candy. The floor space measures 1029 square meters. (5) The Nanking Petrochemical Plant Commercial Building can accommodate 550 customers. It has two stories and is 1210 square meters in floor space. Eight photographs and eight diagrams are included.

AUTHOR: None

ORG: None

TITLE: "Captions to Photographs on Front Cover, Inside Front Cover, Back Cover and Inside Back Cover"

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 4, Dec 76 pp front cover, inside front cover, back cover and inside back cover

ABSTRACT: The front cover photograph shows on-site construction of six-story prefabricated concrete hollow large-panel apartment buildings in Nanning, Kwangsi Chuang Autonomous Region. In the inside front cover, the upper photograph shows a new residential area in front of the Potala Palace, Lhasa. The middle photograph is of a bridge across the Tsangpo in Tibet. The bottom photograph shows main entrance to the Tibet Normal College. On the back cover, the upper photograph is an exterior view of Wang-t'ing Power Plant, Kiangsu Province. In the bottom photograph is a 300,000 KW double interior water cooling [cooling of rotor and stator] turbogenerator set in Wang-t'ing Power Plant. On the inside back cover, the photographs show lighting fixtures.

AUTHOR: None

ORG: Department of Civil and Architectural Engineering, Chengchow Engineering College; Revolutionary Committee, People's Commune Named "Spacious Countryside Ample for Full Development of Our Talents"

TITLE: "Planning New Villages in the Commune Named 'Spacious Countryside Ample for Full Development of Our Talents'"

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 4, Dec 76 pp 2-5 & 14

TEXT OF ENGLISH ABSTRACT: The commune named "Spacious Countryside Ample for Full Development of Our Talents" of the Chia-hsien County, Honan Province, has brought about tremendous changes; the collective economy has grown fast and the people's livelihood has steadily improved. The commune Party committee, on the basis of developing agriculture, has drawn up the planning of new villages and carried out the construction of commune members' residences.

The commune consists of four brigades (25 production teams), with 1000 odd households scattered in ten villages. After making investigations on the status quo, population composition and production conditions of these villages, the Party committee repeatedly studied and finally

[continuation of CHIEN-CHU HSUEH-PAO No 4, Dec 76 pp 2-5 & 14]

decided to concentrate them into six new villages, which have been separately planned in detail.

The main principles of planning the new villages may be summarized as follows:

(1) In accordance with the system of taking the form of three-level ownership, that is, ownership by the commune, the production brigade and the production team, with the last as the basic accounting unit at the present stage and considering the possibility of the gradual transition of the ownership with the brigade as the basic accounting unit in the future, it is desirable to make the size of the new village large enough to accommodate all the households of one brigade.

(2) Proceeding from the principle of "beneficial to production and convenient to the people," it is preferable to control the distance from the village to the farthest fields in the scope of a circle with a radius of 1.5 to 2 kilometers.

(3) In planning the new villages, the topographical and geological features as well as production and living conditions of the existing villages should be fully considered, and the existing wells, roads,

[continuation of CHIEN-CHU HSUEH-PAO No 4, Dec 76 pp 2-5 & 14]

grounds as well as public buildings should be utilized as much as possible.

(4) To save land, two-storied houses are generally built for the commune members. In designing the houses, the necessary conditions for engaging in household sideline production and for promoting the use of marsh gas should be fully considered. Structurally big hollow concrete blocks are used to replace the common bricks and locally available building materials are widely utilized to cut down the cost of construction.

Included are one table, seven photographs and eight diagrams.

AUTHOR: None

ORG: Institute for Design and Surveying of Industrial Buildings of Tibet Autonomous Region

TITLE: "New Aspects of Construction in Lhasa"

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 4, Dec 76 pp 6-8

TEXT OF ENGLISH ABSTRACT: The Tibet Autonomous Region's construction work has developed rapidly and won brilliant achievements since 1959. In the meantime, Lhasa's city construction has been continuously advancing; and, especially since the Cultural Revolution, this famous city of the tableland at an altitude of 3700 meters above sea level has been presenting a totally new aspect on the "Roof of the World."

Lhasa's city proper is located at the west end of the Lhasa River valley, where the fertile, plain fields basking in the bright sunshine are suitable for agriculture and stock-raising. But, in the old China, for centuries under the rule of a feudal serf system, Lhasa was merely a bleak and filthy castle with a population of less than 30,000, where the laboring people used to roam on the streets, begging for their daily bread.

[continuation of CHIEN-CHU HSUEH-PAO No 4, Dec 76 pp 6-8]

Tibet was liberated peacefully in May 1951, and since then Lhasa has gained its new life. Through the democratic reform, the socialist education movement and the movement of building up communes, especially since the Cultural Revolution, Lhasa has been advancing on the socialist road with great strides. Its city construction has also brought about tremendous changes, and a lot of industrial enterprises have been set up on a large scale unknown in the past. Today the Lhasa River valley is dotted with dozens of medium- and small-sized factories, producing its own electricity, machinery, farm machines, chemicals, building materials, etc. And a new thermal power plant is nearing completion.

In recent years, Lhasa has built up a complete network of roads, with the main avenues paved with asphalt. Greenery construction has been carried out in a planned way, and more than 30,000 apple trees have been transplanted. The Potala Palace and the Jolghang Temple were listed among special national monuments to be protected by the government, and the buildings are carefully repaired each year so as to restore to their original splendor. Open to the public, they have become a place for carrying out class education and learning the history of cultural intercourse between the Tibetan and Han nationalities.

[continuation of CHIEN-CHU HSUEH-PAO No 4, Dec 76 pp 6-8]

From Barkor Street to the Potala Palace used to be a waste of mud and dirty pools. Now called the People's Road, it is a wide, tree-lined avenue with shops, a department store, bank, post-office, bookstore, cultural palace and other public service facilities, becoming a thriving commercial district.

New Lhasa has dozens of primary and secondary schools, five hospitals, a large number of housing and other public buildings including exhibition halls, cinemas and stadiums.

To meet the continuously developing requirements of the socialist revolution and construction, a new city planning is being drawn up; this will make Lhasa become a more beautiful and prosperous city on the world's highest and largest tableland.

Included are ten photographs.

AUTHOR: None

ORG: Architectural Research Institute of Kwangsi Chuang Autonomous Region

TITLE: "Prefabricated Concrete Hollow Large-Panel Buildings"

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 4, Dec 76 pp 9-14

ABSTRACT: In prefabricated concrete hollow large-panel buildings, interior and exterior wall panels, floors, roof panels and stairway are concrete hollow members; the structure is simple and construction material is uniform. Open air manufacture for members, with natural curing, means low cost of about 62.0 to 64.82 yuan per square meter, power and water facilities included. Work efficiency is high: less than three man-days per square meter of construction. This structure can be used for apartment buildings, dormitories and office buildings. Photographs show apartment buildings of four and six stories; some show roof panels and wall panels. One table, eight photographs and fourteen diagrams are included.

AUTHOR: None

ORG: P'ing-ting-shan Municipal Coal Dressing Design and Research Institute

TITLE: "Design of Multipurpose Main Building of Coal Dressing Plant"

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 4, Dec 76 pp 15-17

ABSTRACT: This multipurpose building is the main building at a large heavy-medium coal dressing plant, processing two kinds of raw coal in two independent production systems. Lump coal is separated by heavy-medium mitre wheels and dust coal -- by cyclone devices, with flotation dressing of coal sludge. The main building is a structure housing both heavy-medium workshop and flotation dressing workshop. This is a multi-story multi-span on-site-poured reinforced concrete frame structure. The column spacing is 7 x 7 m and the overall length of the building is 100 m and 35 to 42 m wide. Expansion joints were installed in the middle section of the building. Included are two tables, three photographs and nine diagrams.

AUTHOR: TSENG FAN-CHIH [2582 4907 2535]

ORG: None

TITLE: "Problems of General Layout of Coal Dressing Plant"

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 4, Dec 76 pp 18-23

ABSTRACT: This article describes problems met in the general layout of large coal dressing plants -- makeup of structures, arrangement of coal dressing plant and mine-mouth industrial site, layout of surrounding facilities, in-plant roads and plant entrance. Traffic flow should be studied and pollution from ash and refuse to living quarters be avoided; these considerations apply to layout of entrances, roads and structures. The prevailing wind, topography, surface objects, engineering geological conditions, boundary position of safety subsurface coal columns, direction of railway and highway and sites of miners' dormitory can determine, to a considerable extent, the general layout. Included are five photographs and thirteen diagrams.

AUTHOR: None

ORG: Design Office of the Construction Command of the Ta-t'un Coal Mine;
Urban Planning Office, Shanghai Municipal Bureau of Urban Construction;
Shanghai Municipal Civil Construction Design Institute

TITLE: "Planning and Construction of Workers' Villages at Ta-t'un Coal Mine

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 4, Dec 76
pp 24-29

ABSTRACT: Ta-t'un Coal Mine was opened in the Cultural Revolution on the banks of Wei-shan Lake. Each mine shaft is near a workers' village; a central residential area joins the villages and mine shaft industrial parks by roads. West of the central residential area is a rail line linking the mine shafts, a power plant and coal consumption areas in the direction of Hsuechow, Kiangsu Province. The total floor space of the central residential area is 322,000 square meters on a 45-hectare site. It serves 35,000 residents who work in machinery repair plants, coal dressing plants, a concrete products plant, a general warehouse, a truck brigade, fire and first-aid teams, a geological surveying brigade, an engineering department and coal mine headquarters. The planned capacity of the Yao-ch'iao Workers' Village is 6000 residents, in a

[continuation of CHIEN-CHU HSUEH-PAO No 4, Dec 76 pp 24-29]

floor space of 65,000 square meters in four-story buildings; the village was for completion by late 1976. It is just one of seven in the general area. Included are three tables, six photographs and thirteen diagrams.

AUTHOR: None

ORG: Office of Urban Planning, Shanghai Municipal Bureau of Urban Construction

TITLE: "Architectural Records: Local Arrangement in Planning of Residential Areas

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 4, Dec 76 pp 30-31

ABSTRACT: This article has four parts: (1) a landscaped children's playground laid out between apartment buildings. (2) A multipurpose building has a grocery market, a food-to-go kitchen, a warehouse, a residents' factory, an office and rest rooms. The grocery market occupies most of the floor space. (3) Lane entrance stores sell groceries and tobacco. (4) A single-story store building is the entrance into four five-story apartment buildings. Included are four photographs and seven diagrams.

AUTHORS: FANG CHIN-SHENG [2075 6855 3932]
HSIA TING-WEN [1115 7844 2429]

ORG: None

TITLE: "Double-Concave Type Skylight"

SOURCE: Peking CHIEN-CHU HSUEH-PAO [ARCHITECTURAL JOURNAL] No 4, Dec 76 pp 37-39

ABSTRACT: The double-concave type skylights are installed along the longitudinal direction of a roof in four parallel skylights. They were adopted at the Loyang Glass Plant. Six years' installation showed this skylight is better than rectangular skylights in ventilation, illumination, rainproofing and technical and economic indicators. In comparison with rectangular skylights, the article gives examples showing that 22 percent less steel is used in the roof system, construction cost 16 percent smaller, steel consumption for reinforced concrete columns is 34 percent less, steel consumption for foundation -- 12 percent smaller and 27 percent less concrete by using double-concave type skylights. The description goes on to discuss designs for drainage of rainwater, waterproofing skylight design, corrosion-proofing of exterior steel frame members and roof access. The illumination features are then enumerated in analysis and measurements.

[continuation of CHIEN-CHU HSUEH-PAO No 4, Dec 76 pp 37-39]

This article takes as its basis of comparison experiments and measurements of double-concave type skylights from the Institute of Architectural Engineering of State Capital Construction Commission, Chu-chou Design Institute of Glass Industry, Pang-fou Design Institute of Glass Industry and Hunan University. Included are four tables, four photographs and nine diagrams.

10424
CSO: 4009

GEOGRAPHIC KNOWLEDGE

AUTHOR: HSIA Hsun-ch'eng [1115 6064 6134]
HU Wen-k'ang [5170 2429 1660]

ORG: None

TITLE: "T'u-lu-fan [Turfan Depression]"

SOURCE: Peking TI-LI CHIH-SHIH [GEOGRAPHIC KNOWLEDGE] in Chinese No 9,
Sep 76 pp 7-10

ABSTRACT: Following a description of the geographical location of the lowest basin in China, the Turfan Depression and the ancient city of Turfan, this paper relates briefly the discovery since the liberation, of large quantity documents, bolts of silk, wooden statues, and other artifacts of Chin and T'ang Dynasties, from old tombs in nearby Kao-ch'ang City. The high temperature and dry climate of the basin caused these relics to be extremely well preserved. Underground channels, measuring a total of 3000 km, and numerous openings, which the local people call K'an-erh Wells, provide water to make the basin an oasis. Since 1964, several large scale aqueducts have been constructed to bring water down from T'ien-shan, and many small reservoirs have also been gradually completed. The irrigated and cultivated acreage of

[continuation of TI-LI CHIH-SHIH No 9, Sep 76 pp 7-10]

the various hsien of the basin is thus being continuously enlarged. In the winter, the local people utilize the surplus water to reclaim the surrounding sand with deep-rooted desert shrubs and trees. In Turfan hisen alone, there are now protective forests measuring a total of 1300 km. Photos depicting aqueducts, and harvests of grapes and melons are given.

AUTHOR: HUNG Kang-yen [4767 6921 7159]
HSU Kuang-shih [6079 1639 1395]

ORG: None

TITLE: "A Visit to Yen-wo-tao [Wild Geese Nest Island]"

SOURCE: Peking TI-LI CHIH-SHIH [GEOGRAPHIC KNOWLEDGE] in Chinese No 9,
Sep 76 pp 11-13

ABSTRACT: Yen-wo-tao is not an ordinary island. It is just a piece of land with one river on one side, another on the other, a lake in the north, and an impenetrable swamp in the south. In the spring, wild geese build nests all over the area. Although a group of people came to cultivate the "island" in 1948, nothing much was accomplished due to lack of transportation. In 1969, all the people on the "island" were mobilized to build a road through the swamp. It took them an entire year to finish. Since then, the "island" is no longer an island and production and construction have grown by leaps and bounds. The inhabitants are educated youths coming from Shanghai, Chekiang, Peking, Tientsin, etc. Their youth and enthusiasm have made prosperity visible everywhere. The authors are among a group of 20-year olds from Shanghai, Chekiang, and Peking, here for a visit. The paper is a report of their trip and the marvelous things those a little more than one thousand young men and

[continuation of TI-LI CHIH-SHIH No 9, Sep 76 pp 11-13]

women who migrated from the same cities as the authors' homes have done in these few short years in this remote border region of Heilungkiang.

AUTHOR: None

ORG: Office of Educated Youths [Who Have] Gone up the Mountains and Down the Countryside, Mou-tan-chiang District, Heilungkiang Province

TITLE: "Building Fields on the Stone Hills of Ning-an"

SOURCE: Peking TI-LI CHIH-SHIH [GEOGRAPHIC KNOWLEDGE] in Chinese No 9, Sep 76 pp 13-14

ABSTRACT: Ning-an-hsien is the ancient city of Ning-ku-t'a, only about 30 km south of Mou-tan-chiang Municipality. In the area surrounding the Lien-hua Brigade of the hsien, there are four giant blocks basalt of ancient lava flow, covering a total area of more than 7 thousand hsiang [a land measure of the Northeast Provinces = 15 mu.] These were barren hills until 1974 when a group of educated youths migrated over here. In the dead winter of -30°C temperature, the group dug a channel 3 m wide, 1.2 m high, and 8 li long to bring the water of Mou-tan-chiang to the stone hills. Dirty was brought in to build up a soil layer of 5-8 ts'un in thickness. By the spring of 1975, rice paddies measuring close to 30 hsiang were completed and rice was immediately planted. The experimental paddies of 2 hsiang yielded a harvest of 800 chin/mu in the first year. This year [1976] more than 60 hsiang of additional paddies have been built. The educated youths and the local commune members have promised themselves that they will continue to build until they will have converted the entire 7 thousand hsiang of rocks into rice paddies.

AUTHOR: CH'UN Tsan [5028 6363]

ORG: None

TITLE: "Heroic Coal Mine of K'ai-luan"

SOURCE: Peking TI-LI CHIH-SHIH [GEOGRAPHIC KNOWLEDGE] in Chinese No 9, Sep 76 pp 15-16, 14

ABSTRACT: K'ai-luan coal mines encompass the 5 hsien of Feng-jun, Feng-nan, Luan-hsien, Luan-nan, and T'ang-shan, measuring 45-55 km from the east to the west, and 15-30 km from the south to the north, in the eastern part of Hopei Province. It is the greatest foundation of coal in China. Following a description of the history of coal mining in this area, starting as early as 1878, the paper tells the tragedy of the earthquake on 28 July. When the earthquake struck T'ang-shan that morning, ten thousand mine workers were underground in the mines. Some people said that these workers were gone; K'ai-luan was gone; there will be no more coal from the area. They were totally mistaken. Due to the determination of the leaders and heroic efforts of all concerned, the mine workers were rescued and brought to the surface [no mention of the number of casualties in the paper] and the first batch of post-earthquake coal was produced on 7 August. Names of many leaders who led and participated in the rescue effort are given in the paper.

AUTHOR: LIANG Shih-lien [2733 1102 1670]
IOU Sheng-keng [2299 5110 5087]

ORG: None

TITLE: "Three-ditches-two-fields System of Huai-pei Plain"

SOURCE: Peking TI-LI CHIH-SHIH [GEOGRAPHIC KNOWLEDGE] in Chinese No 9,
Sep 76 pp 23-24

ABSTRACT: Huai-pei [north of Huai-ho] plain of Anwei Province is a part of the North China Plain. Aside from a few scattered low hills in the northeast, most of the plain is flat. Rainfall is abundant and the ground water table is high, generally at 1-3 m below the surface. Under these conditions, flood damage is constant. The yield of agricultural crops had always been low and unstable. Digging ditches for drainage was not a new practice here, but there had never been a planned system of ditches, such as the one in Ku-cheng of the southern part of the plain. The ditches are in 3 sizes, with the large ditches parallel to one another and connected by medium ditches. Between 2 large ditches, several small ditches were dug parallel to one another to separate the rectangular fields. The dirt dug up from the ditches was piled up on the fields to increase the thickness of the soil. After the system of the ditches was completed in 1974, grain yield was increased about 50% above that of 1972, while

[continuation of TI-LI CHIH-SHIH No 9, Sep 76 pp 23-24]

the rainfall conditions of both years were about the same. In the Huai-pei Plain, the ditch system of Ku-cheng is by no mean unique and the yield increase results have all been very encouraging.

6168

CSO: 4009

ACTA PHYSICA SINICA

AUTHOR: None

ORG: Magnetic Crystal Group, Institute of Physics, Chinese Academy of Sciences

TITLE: "Growth and Magnetic Properties of Single Crystal In-Substituted BiCa VFe-Ferrimagnetic Garnet"

SOURCE: Peking WU-LI HSUEH-PAO [ACTA PHYSICA SINICA] in Chinese Vol 25, No 5, Sep 76 pp 373-382

TEXT OF ENGLISH ABSTRACT: Single crystals of ferrimagnetic garnet $\text{Bi}_{3-2x}\text{Ca}_{2x}\text{Fe}_{5-x-y}\text{In}_y\text{V}_x\text{O}_{12}$ are given by the flux method, with $x = 1.35 \pm 0.02$, $y = 0-0.388$. Single crystals having a dimension greater than 10 mm and few inclusions can be obtained for all materials with different indium content by the technology described in this paper. The Curie temperature of all these materials is 10-30°C higher than that of Ga-YIG with the same magnetization. The magnetic anisotropic constant drops rapidly with increase in number of the nonmagnetic indium ions. The anisotropic field falls slightly at first and then increases gradually with decrease from 530 to 200 Gauss of the saturation magnetization. The ferromagnetic resonance linewidth for the X band region increases with decreasing magnetization. It seems that there exists a

[continuation of WU-LI HSUEH-PAO No 5, Sep 76 pp 373-382]

relaxation mechanism which is connected with the dipole-narrowed model. The linewidth is about 1 to 4 Oe for the materials with the above magnetization. The best materials obtained possess an anisotropic field of 16 Oe and a linewidth of 0.7 Oe. The above results show that these materials can be employed in low frequency microwave devices. This paper was received for publications on 9 February 1976.

AUTHOR: HSIEH I [6200 5030]

ORG: Institute of Atomic Energy, Chinese Academy of Sciences

TITLE: "A Short-cut Method for the Solution of the Betatron Oscillation in Particle Accelerators"

SOURCE: Peking WU-LI HSUEH-PAO [ACTA PHYSICA SINICA] in Chinese Vol 25 No 5, Sep 76 pp 383-398

TEXT OF ENGLISH ABSTRACT: A short-cut method for the solution of the betatron oscillation in particle accelerators is developed to obtain its smooth term and quick oscillation term in whatever order of accuracy desired. An example is worked out in detail to show the practical application of the theory. Finally the mathematical foundation of this method is proved. This paper was received for publication on 6 June 1974.

AUTHOR: HUO Yu-p'ing [7202 5940 1627]

ORG: Institute of Physics, Chinese Academy of Sciences

TITLE: "Local Stability Criteria of the Tokamak and Effect of the Multipole Field"

SOURCE: Peking WU-LI HSUEH-PAO [ACTA PHYSICA SINICA] in Chinese Vol 25 No 5, Sep 76 pp 399-408

TEXT OF ENGLISH ABSTRACT: The local stability of the Tokamak is discussed and a general approximate criterion $\beta < 2c/\eta/\Phi_c$ obtained, where η is the longitudinal magnetic well. Furthermore, the influence of multipole fields on the longitudinal magnetic well and the magnetic shear is discussed. It is observed that small triangular and octopole field components may substantially stabilize a Tokamak of elliptical cross-section. This paper was received for publication on 31 December 1974.

AUTHOR: HO Tso-hsiu [0149 4373 1652]
HUANG T'ao [7806 3447]

ORG: Both of Institute of High Energy Physics, Chinese Academy of Sciences

TITLE: "Field-Current Identity and the Decay Process $\pi^+ \rightarrow e^+ + \nu + \gamma$ "

SOURCE: Peking WU-LI HSUEH-PAO [ACTA PHYSICA SINICA] in Chinese Vol 25 No 5,
Sep 76 pp 409-414

TEXT OF ENGLISH ABSTRACT: This article calculates the radiative decay process $\pi^+ \rightarrow e^+ + \nu + \gamma$ of the π^+ meson, by employing the field-current identity of the axial vector current which may be deduced from field algebra theory or the quantum theory of composite fields. The theoretical calculations are compatible with experimental results.

This paper was received for publication on 3 April 1974.

AUTHOR: HU Ning [5170 1337]
KAO Ch'ung-shou [7559 1504 1108]
CH'IN Tan-hua [4440 2481 5478]
HUANG Ch'ao-shang [7806 2600 0794]

ORG: All of Elementary Particle Theory Group, Department of Physics, Peking University

TITLE: "Some Discussions of the Structure Wave Functions of Mesons in the Approximation of Instantaneous Interaction (II) The Harmonic Oscillator [Resonance Particle] Model of Pseudo-Scalar and Vector Mesons"

SOURCE: Peking WU-LI HSUEH-PAO [ACTA PHYSICA SINICA] in Chinese Vol 25 No 5,
Sep 76 pp 415-422

TEXT OF ENGLISH ABSTRACT: On the basis of our previous report this paper discusses the structure wave functions of mesons formed from a straton and anti-straton pair. We assume that the straton is very heavy and that the interaction is the potential of a harmonic oscillator. Provided the spinor type coupling satisfies certain conditions then the following general results are obtained: (1) The equal spacing relation of the squared mass levels are obtained automatically, and at the same time the usual difficulty of too high energy values for the ground states is avoided; (2) If the intrinsic weak current of the straton is of the V-A type, and also if its intrinsic electro-magnetic current contains no anomalous magnetic moment, then the inconsistency in the Cabibbo angle for

[continuation of WU-LI HSUEH-PAO Vol 25 No 5, 1976 pp 415-422]

the two body lepton decay of the pseudo-scalar meson and the difficulty in explaining the branching ratios of e^+e^- decay of various vector mesons may be avoided; (3) A very small SU(3) violation term is sufficient to explain the observed SU(3) mass breaking of mesons. This gives a reasonable explanation why the mass of K is 3.5 times that of the pion while SU(3) symmetry is still manifested in many situations; (4) The expansion of the equation with respect to p^2/M^2 gives fairly good approximation; (5) The radius of distribution of the straton and antistraton is compatible in order of magnitude with the observed electro-magnetic radius of the meson; (6) The spinor and momentum structures of the structure wave functions are completely determined by the theory.

This paper was received for publication on 10 October 1974.

AUTHOR: TS'AO Ch'ang-ch'i [2580 2490 4388]

ORG: Department of Physics, Peking University

TITLE: "Note on the Electromagnetic Form Factor and Integral Representation of the Wave Function in the Straton Model"

SOURCE: Peking WU-LI HSUEH-PAO [ACTA PHYSICA SINICA] in Chinese Vol 25 No 5, Sep 76 pp 423-432

TEXT OF ENGLISH ABSTRACT: Although the meson mass spectrum calculated from the simple harmonic potential by the B-S equation fits the experimental data fairly well, the wave function so obtained leads however to unreasonable results when applied to calculate the electromagnetic form factor, which turns out to be complex for space-like q^2 . It is argued that the reason for this lies in the fact that such a wave function does not possess the correct analytical property for the variable p_0 . In order to guarantee this analyticity as well as to maintain the covariant form, it is adequate to express the wave function in the form of an integral representation according to a theorem proved by Dyson. Furthermore, some summation rules for the spectral function in the integral representation are derived with the physical condition that the wave function should be finite at $x = 0$.

This paper was received for publication on 10 October 1974.

AUTHOR: WU Shih-shu [0702 1709 2873]

ORG: Department of Physics, Kirin University

TITLE: "On Nuclear Single-Particle Potentials (I) A Theorem"

SOURCE: Peking WU-LI HSUEH-PAO [ACTA PHYSICA SINICA] in Chinese Vol 25 No 5, Sep 76 pp 433-443

TEXT OF ENGLISH ABSTRACT: In this paper a theorem is proved and some of its applications discussed. The theorem gives an answer to the question: Under what conditions does the following relation

$$\varepsilon_a = \pm [E_a(N \pm 1) - E_0(N)]$$

hold exactly? In the above relation, the ε_a 's are the single-particle (sp) energies determined by the corresponding sp potential, $E_0(N)$ is the exact ground state energy of a closed-shell nucleus N , and the $E_a(N \pm 1)$'s denote the exact energy eigenvalues of its neighboring $N \pm 1$ nucleus.

This paper was received for publication on 26 February 1975.

AUTHOR: LI Kuo-tung [2621 0948 2767]
HSU Ying-t'ing [1776 5391 1656]

ORG: LI of Institute of Physics, Chinese Academy of Sciences; HSU of Institute of High Energy Physics, Chinese Academy of Sciences

TITLE: "Study of the Mossbauer Effect of a Bismuth Calcium Vanadium Iron Garnet"

SOURCE: Peking WU-LI HSUEH-PAO [ACTA PHYSICA SINICA] in Chinese Vol 25 No 5, Sep 76 pp 444-449

ABSTRACT: The purpose of this paper is to investigate the problem of ion exchange through measurement, analysis, and comparative study of the Mossbauer effect of BCVIG and YIG. The hypothesis that V^{5+} ions enter the tetrahedral crystal position (d crystal position) is verified. The Mossbauer spectrum observed agrees with the energy spectrum parameters obtained from calculation. When the Mossbauer spectra of Fe and α -Fe₂O₃ are used to determine the speed, and the speed and the track number relationship curve of α -Fe₂O₃ is used to determine the zero point of speed, the energy spectra positions thus calculated correspond with the experiment.

This paper was received for publication on 4 November 1975.

AUTHOR: LI Te-chung [2621 1795 1813]
WANG Yin-chun [3769 5593 0689]
CH'EN Shu-ch'ao [7115 2579 3390]
HSIEH K'an [6200 0170]

ORG: All of Institute of Physics, Chinese Academy of Sciences

TITLE: "Experimental Observations of Some Magneto-Optical Materials"

SOURCE: Peking WU-LI HSUEH-PAO [ACTA PHYSICA SINICA] in Chinese Vol 25 No 5,
Sep 76 pp 450-454

ABSTRACT: A magneto-optical spectrograph, recently made by the authors, is introduced in the paper. It is an instrument designed to measure both the Kerr effect and the Faraday effect of optical films. Due to the limitation of the photoelectric multiplier, its effective measurement range is 0.4-0.8 μ . Results of some preliminary observations and measurements with this instrument are reported.

This paper was received for publication on 9 February 1976.

AUTHOR: CHANG Tieh-cheng [1728 6993 6927]

ORG: Worker-engineer, Ta-kang Oil Field

TITLE: "Earthquake Forecasting by a Method of Doubling the Magnetic-storm Interval"

SOURCE: Peking WU-LI HSUEH-PAO [ACTA PHYSICA SINICA] in Chinese Vol 25 No 5,
Sep 76 pp 455-459

ABSTRACT: When the author and colleagues joined the project of earthquake forecasting after the Hsing-t'ai earthquake in March 1966, they discovered that there had often been large scale changes in the earth's magnetic field before an earthquake. These changes have often been regarded as related to magnetic storms. The vertical component of earth's magnetism at zero hour is basically not affected by the sunlight, however, and prolonged observed discloses that the earth's magnetism changes at zero hour and sudden, large scale rises occur constantly. Repeated studies indicate that: Let the time of a positive anomaly be T_1 , and the time of another positive anomaly be T_2 , then the time of the occurrence of an earthquake T should be: $T = T_1 + 2(T_2 - T_1) = 2T_2 - T_1$. Further investigation is needed to determine whether this method of earthquake forecasting can actually be applied in practice. The theoretical bases for this method are discussed.

6168

CSO: 4009

ACTA GEOPHYSICA SINICA

AUTHOR: None

ORG: None

TITLE: "Photographs of Earthquake Damage and Repairs"

SOURCE: Peking TI-CH'IU-WU-LI HSUEH-PAO [ACTA GEOPHYSICA SINICA] in Chinese No 4, Oct 76 p 258

ABSTRACT: Eight photographs are presented; from left to right: (1) Workers and railway soldiers repair tracks damaged by earthquake; (2) First batch of coal produced on the 11th day following the earthquake due to heroic struggle of workers and the staff of the coal mine; (3) Condition of railway tracks twisted by the earthquake; (4) Condition of the coal mine damaged by the earthquake; (5) Train in operation on Ching-shan Railway after the earthquake damage was quickly repaired; (6) Workers are repairing earthquake damaged power station; (7) Condition of earthquake damaged highway before repairs; (8) Condition of power transformers damaged by earthquake before repairs.

AUTHOR: CH'IU Ch'un [6726 5028]

ORG: None

TITLE: "On the Background and Seismic Activity of the M = 7.8 Tangshan Earthquake, Hopei Province of 28 July 1976"

SOURCE: Peking TI-CH'IU-WU-LI HSUEH-PAO [ACTA GEOPHYSICA SINICA] in Chinese No 4, Oct 76 pp259-269

TEXT OF ENGLISH ABSTRACT: On 28 July 1976 an earthquake of magnitude 7.8 broke out in the vicinity of the city of Tangshan, Hopei Province, within a region corresponding to the conjunction of both the Yenshan and the Hopei Plain earthquake belts. It is thought of as the result of the combined action of North-northeast and east-west structural systems of North China. The occurrence of this earthquake also indicates that the seismic activity of North China has at present entered an active stage of the Fourth Period of seismic activity of North China. Based on the signs of initial motions of P-waves, the strike of the earthquake fault is found to be $NE41^{\circ}$, dipping to SE, dip angle, 85° . It behaves as a right-lateral normal fault dislocation, taking place on a nearly vertical fault plane. Observations show that the aftershocks of this earthquake sequence die down in certain fluctuations rather quickly with time. The

[continuation of TI-CH'IU-WU-LI HSUEH-PAO No 4, 1976 pp 259-269]

inclination of the linear relation between the cumulated frequency and magnitudes of aftershocks (th b-value) is relatively high. More than 80% of the energy released by the entire earthquake sequence belong to the main shock and several stronger aftershocks. All such facts suggest that the aftershock sequence of the Tangshan earthquake is the type beginning by the mainshock (the so-called mainshock-type.)

AUTHOR: KU Hao-ting [7357 3185 7844]
CH'EN Yun-t'ai [7115 6663 3141]
KAO Hsiang-lin [7559 4382 2651]
CHAO I [6392 3015]

ORG: KU of Liaoning Provincial Bureau of Seismology; CH'EN of Institute of Geophysics, Chinese Academy of Sciences; KAO of Earthquake Group of Ninghsia Hui Nationality Autonomous Region; CHAO of Canton Earthquake Group, State's Bureau of Seismology

TITLE: "Focal Mechanism of Hai-ch'eng, Liaoning Province Earthquake of 4 February 1975"

SOURCE: Peking TI-CH'IU-WU-LI HSUEH-PAO [ACTA GEOPHYSICA SINICA] in Chinese No 4, Oct 76 pp 270-285

TEXT OF ENGLISH ABSTRACT: Fault plane solutions are obtained from data of the first motions for 24 earthquakes with $M_s \geq 4.0$ of the Hai-ch'eng earthquake sequence, the mainshock of which occurred on Feb 4, 1975. One of the nodal planes of the mainshock strikes N 70° W, dipping 80° to the NE while the other nodal plane strikes N 23° E, dipping 75° to the SE. Based on the data of the spatial distributions of the aftershocks and the ground deformations, the N 70° W nodal plane is taken as the fault plane. The faulting is nearly a vertical, left-lateral strike-slip with a minor component of normal dip-slip movement. While



Continuation of TI-CH'IU-WU-LI HSUEH-PAO No 4, Oct 76 pp 270-285]

focal mechanisms of all the foreshocks and most of the aftershocks are similar to that of the mainshock, those of 4 aftershocks with $M_s \geq 4.0$ are remarkably different from the mainshock. They represent a faulting with slip vector reversed in direction to that of the mainshock. One possible explanation for these exceptions is that during the mainshock the fault movement overshoot along some segments of the fault. The source parameters of the mainshock are calculated from the data of field observations and spatial distributions of the aftershocks. The fault length, width, average dislocation, seismic moment, and stress-drop of the mainshock are estimated as 70 km, 20 km, 45 cm, 2.1×10^{26} dyne.cm, 4.8 bars respectively. It is a low stress-drop earthquake occurring in a weak zone that is incapable of accumulating higher stresses. For 81 foreshocks and aftershocks the source dimensions, seismic moments, stress-drops as well as average dislocations are calculated from the data of the first half cycles and amplitudes of the seismic P-waves. The results indicate that the stress-drops are rather low, and generally in the range of 0.1-1.0 bars for both the foreshocks and aftershocks. There are two regions with relatively higher stress-drops (≥ 0.8 bars), which correspond to the overshooting portions of the main fracture. These results imply that there might be some intrinsic connections between higher initial stresses before the mainshock, overshooting of fault movement, relatively high stress-drops, and reverse of the slip vectors of focal mechanisms. It seems that the latter three phenomena are the results of the relatively higher initial stress.

AUTHOR: TUAN Hsing-pei [3008 2502 0554]
 CHENG Chien-chung [6774 1696 0022]
 CHOU Chih-ch'un [0719 1807 5028]
 YEN Shou-min [0917 1108 3046]
 SUN Tz'u-ch'ang [1327 2945 2490]

ORG: All of Institute of Geophysics, Chinese Academy of Sciences

TITLE: "Variations in Teleseismic P Wave Residuals Before the Hai-ch'eng Earthquake"

SOURCE: Peking TI-CH'IU-WU-LI HSUEH-PAO [ACTA GEOPHYSICA SINICA] in Chinese No 4, Oct 76 pp 286-294

TEXT OF ENGLISH ABSTRACT: The Seismograph station of Yin-k'ou is located in the source region of Hai-ch'eng earthquake. During two years and nine months before the shock, increase of P wave residuals at this station lasted for one year and four months. The amplitude of the increase is between 0.34sec and 0.73 sec. It seems that there are two highs and one low. These variations show that a zone of decreased P wave velocity may be found in the crust and upper mantle beneath the station. It appears that this zone caused by the effect of magmatic activities at great depth and resulting in the occurrence of the large earthquake.

AUTHOR: FENG Jui [7458 6904]
P'ANG Ch'ing-yen [1690 1987 5888]
FU Cheng-hsiang [0265 1767 4382]
CHENG Chien-chung [6774 1696 0022]
SUN Tz'u-ch'ang [1327 2945 2490]
LI Pao-hsiang [2621 1405 4382]

ORG: FENG, CHENG, SUN, LI of Institute of Geophysics, Chinese Academy of Sciences;
P'ANG of Liaoning Provincial Bureau of Seismology; FU of Lan-chou Earthquake Group,
State's Bureau of Seismology

TITLE: "Variations of V_p/V_s Before and After the Hai-ch'eng Earthquake of 1975"

SOURCE: Peking TI-CH'IU-WU-LI HSUEH-PAO [ACTA GEOPHYSICA SINICA] in Chinese
No 4, Oct 76 pp 295-305

TEXT OF ENGLISH ABSTRACT: In this paper, the data of 147 earthquakes occurred before and after the Hai-ch'eng earthquake of 4 February 1975, $M = 7.3$ have been analyzed. The results obtained, indicate that before the mainshock, anomalous variations of the velocity ratio V_p/V_s was quite obvious. Its values began to fall at first and then recovered. This negative anomaly of V_p/V_s seems to have been started at least 4 years ago. Maximum negative value for V_p/V_s can reach about 10% of its normal. Nearly 10 months after the conclusion

[continuation of TI-CH'IU-WU-LI HSUEH-PAO No 4, Oct 76 pp 295-305]

of the anomaly, the mainshock took place. Before the main event, the area occupied by the anomaly was quite large, while only in a small region around the earthquake source area, negative anomaly of the velocity ratio suddenly appeared immediately before the mainshock, at a time when the value of V_p/V_s increased to the normal. Before the main event, the variation in the S-wave velocity was not appreciable. However, P-wave velocity and its virtual velocity showed anomalous changes. About two months before an aftershock of magnitude 4.8, the value of V_p/V_s also appeared to be anomalous. Eight explosion records were also analyzed, but no apparently velocity ratio anomaly was observed. As regards to the cause of the velocity ratio anomaly, we merely suppose that under the action of concentrated tectonic stress, rocks change in their elastic property and numerous microfractures are formed.

AUTHOR: CH'EN Yung [7115 9581]
LI Cheng-mou [2621 2398 6180]
P'ENG Shu-sheng [1756 2579 5116]

ORG: CH'EN of Experimental Group, Third Laboratory, Institute of Geophysics, Chinese Academy of Sciences; LI, P'ENG of Worker-farmer-soldier Students, University of Sciences and Technology of China

TITLE: "A Preliminary Study on the Fracture of Rocks Under Uniaxial Compression"

SOURCE: Peking TI-CH'IU-WU-LI HSUEH-PAO [ACTA GEOPHYSICA SINICA] in Chinese No 4, Oct 76 pp 306-316

TEXT OF ENGLISH ABSTRACT: The uniaxial compression tests under different ways of loading were performed on a variety of rock samples. When loading with constant strain rate (about 10^{-2}) the fracture process of the rocks generally may be divided into four stages: compression of pores, elastic deformation, volume dilatation and the period just preceding an imminent rupture. The last two stages are characterized by the initiation of the non-elastic volume strain which increases sharply just before the main rupture. This sort of volume strain varies in coincidence with the accumulated number of microfractures.

[continuation of TI-CH'IU-WU-LI HSUEH-PAO No 4, 1976 pp 306-316]

As the loading is repeated, the process of microfracturing appears irreversible. This might be used to explain the difference between the sequences of two earthquakes when they occurred within a short interval of time in the same region one after the other. It is pointed out that due attention must be paid to the history of stress variation in an area when historical records of earthquakes are to be studied.

AUTHOR: CHU Ch'eng-nan [2612 2052 3948]
CH'EN Ch'eng-chao [7115 2052 3564]

ORG: Both of K'un-ming Earthquake Group, State's Bureau of Seismology

TITLE: "Rupture Mechanism of the Chao-t'ung Earthquake of 1974 in Yunnan Province"

SOURCE: Peking TI-CH'IU-WU-LI HSUEH-PAO [ACTA GEOPHYSICA SINICA] in Chinese No 4, Oct 76 pp 317-329]

TEXT OF ENGLISH ABSTRACT: On 11 May 1974 an earthquake of magnitude 7.1 occurred in the Chao-t'ung County, Yunnan Province. The epicenter is located in the mountainous region on the southern bank of lower Chin-sha River. In this paper, by analyzing the geodetic data in and around the epicentral region, a thrust fault pattern of focal rupture has been established from the relationship between rupture and strain. Based on intensity attenuation and after-shock distribution, we obtain the parameters of a rectangular slip fault model, and by applying the analytical expressions for the displacement field of a finite-slip inclined fault given by Mansiha and Smylie, the average dip-slip dislocation is calculated. The results are as follows: fault strike, N6°W; dip direction N84°E; dip angle, 60°; length of fault plane 20 kms, width 30 kms; depth of the top of the fault, 2.5 kms below the surface; average dislocation of dip-slip, 2.8 m; seismic moment, 5.4×10^{26} dyne. cm; stress drop,

[continuation of TI-CH'IU-WU-LI HSUEH-PAO No 4, 1976 pp 317-329]

51 bars; lower limit of the strain energy released, 1.2×10^{23} ergs. The authors also briefly discuss the nodal plane solution based on P waves and the tectonic conditions relating to the occurrence of the earthquake. Finally some macro-seismic phenomena are explained.

6168
CSO: 4009

ACTA ASTRONOMICA SINICA

AUTHOR: NING Ch'en [1337 6591]

ORG: None

TITLE: "Comments on the 'Byurakan Direction' in Cosmogonical Investigation"

SOURCE: T' IEN-WEN HSUEH-PAO [ACTA ASTRONOMICA SINICA] in Chinese Vol 16 No 2, Dec 76 pp 93-100

EXCERPT OF ENGLISH ABSTRACT: The Byurakan school of cosmogony asserts that stars and galaxies are formed from superdense matter. They are opposed to the view that stars and galaxies are formed from diffuse matter. They regard this view as representative of the out-of-date, hypothetical 'classical direction' in cosmogonical research, while their view represents the correct direction, called by themselves the 'Byurakan Direction.' In recent years, the Byurakan school goes a step further, asserts that cosmic processes go uni-directionally, irreversibly from the denser to the less dense, in short, from dense to dilute. The Byurakan school claims that their research has been guided by the materialistic-dialectical world-outlook, but in reality their viewpoints violate materialistic dialectics. The most important law of materialistic dialectics is the law of contradictions, i.e., the law of the unity of opposites. Contradiction of attraction versus repulsion is the most fundamental contradiction in nature. In every cosmic process there are present both attraction and

[continuation of T' IEN-WEN HSUEH-PAO Vol 16 No 2, 1976 pp 93-100]

repulsion, sometimes the two contradictory aspects are in relative equilibrium, sometimes the two contradictory aspects are in relative equilibrium, sometimes one of them predominates. Each of the contradictory aspects within a material system often transforms itself into its opposite, i.e., changes its position to that of its opposite. The Byurakan school considers cosmic processes as going one way from dense to dilute, so they only admit the existence of the contradictory aspect - repulsion, and denies completely the existence of the other aspect - attraction, thus negates the law of unity of opposites, negates materialistic dialectics. The Byurakan school regards their theory as 'in complete accordance with the Second Law of Thermodynamics', thus linking their cosmogonical theory to the notorious theory of the expanding universe (the big bang version.) All three theories commit the same philosophical mistake - regarding cosmic processes as uni-directional.

AUTHOR: None

ORG: Photoelectric Astrolabe Research and Production Group, Chinese Academy of Sciences

TITLE: "Developing Production of Astronomical Instruments by Self-Reliance: How China's Photoelectric Astrolabes Were Produced"

SOURCE: T' IEN-WEN HSUEH-PAO [ACTA ASTRONOMICA SINICA] in Chinese Vol 16 No 2, Dec 76 pp 101-103

ABSTRACT: The Photoelectric Astrolabe Research and Production Group is composed by a group of people affiliated with the Nanking Astronomical Instrument Plant of Chinese Academy of Sciences, the Shanghai Observatory, and the Peking Observatory. The idea of research in the manufacturing of a photoelectric astrolabe occurred to these people in 1958. But, a few reactionaries insisted that the Chinese should not attempt to do something which foreigners had not been able to do. The idea was brought up once more at a conference in 1962, and was again defeated by the reasoning that technology in China was not sufficiently mature for such an attempt. It was not until December of 1968 before the project won the support of the leadership of the Chinese Academy of Sciences. The process of research and production of the photoelectric astrolabe is told in the paper. The properties of the instrument are only briefly mentioned. This paper was received for publication in June 1975.

AUTHOR: None

ORG: Photoelectric Astrolabe Section and Data Analysis Section, First Laboratory, Shansi Observatory, Chinese Academy of Sciences

TITLE: "Preliminary Analysis of Observational Data Obtained With a Photoelectric Astrolabe Type I"

SOURCE: T' IEN-WEN HSUEH-PAO [ACTA ASTRONOMICA SINICA] in Chinese Vol 16 No 2, Dec 76 pp 104-114

TEXT OF ENGLISH ABSTRACT: The photoelectric astrolabe type I is a new type instrument for time determination and latitude determination, designed and constructed in our country, under the guidance of the principle of independent thinking and self-reliance. This new instrument was installed and adjusted in our observatory at the end of 1971. The results of test observations have already been published. In this paper, the observational results during the period October 1973 to December 1974 are analyzed, and the quality of the instrument is estimated. The result of analysis shows that this instrument is entirely free of the effect of personal equation, and the precision of observation is high. Using the data obtained during this period, the problems of determining the systematic error of FK4 catalog and improving the constant of aberration are investigated.

This paper was received for publication on 12 July 1975.

AUTHOR: None

ORG: Photoelectric Astrolabe Research and Production Group, Chinese Academy of Sciences

TITLE: "The Photoelectric Astrolabe Type II"

SOURCE: T' IEN-WEN HSUEH-PAO [ACTA ASTRONOMICA SINICA] in Chinese Vol 16 No 2, Dec 76 pp 115-122

TEXT OF ENGLISH ABSTRACT: The photoelectric astrolabe type I was made in China in 1971; and several improved photoelectric astrolabes, of a second model, were constructed from 1972 to 1974. The principles and a description of the main parts of the new instruments are as follows: (1) By means of a fused quartz mirror system and mercury horizon (shown in Fig 4,) a telescope with a fixed glass grid, three photomultipliers with respective a.c. amplifiers and a time recorder, the astrolabe can determine the time of almucantar transit of a star without personal error. (2) The evacuated Ritchey-Chretien telescope has an aperture of 20 cm and a focal length of 2.4 m. (3) As is expected, the vacuum telescope tube with horizontal entrance window is able to eliminate astronomical refraction, the dependence of refraction on the spectral class of the star and irregular refraction in the tube. Besides, the vacuum tube provides a stable environment for optical system, especially for mercury horizon. (4) The astrolabe is equipped with high and low speed motors, as well as an automatic track-

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ing mechanism in azimuth direction. (5) In order to reduce the heat influence from the surroundings, the astrolabe is set on the first floor of the observing building, whereas the control console, electronic equipments and the operator are on the ground floor. At Shanghai Observatory, observations have been carried out with the new instrument since Sep 1974. The excellent results obtained will be published later on.

This paper was received for publication 25 July 1975.

AUTHOR: TAI Wen-sai [2071 2429 6357]

ORG: Department of Astronomy, Nanking University

TITLE: "An Interpretation of Titius-Bode Law"

SOURCE: T' IEN-WEN HSUEH-PAO [ACTA ASTRONOMICA SINICA] in Chinese Vol 16 No 2, Dec 76 pp 123-130

TEXT OF ENGLISH ABSTRACT: The distance of a planet or a regular satellite from the central body is related to the mass of the planet or regular satellite. The boundary between two adjacent planetary regions (or regular satellite regions) is related to the mass ratio of the two planets (or the regular satellites.) When the boundary is properly chosen ($\gamma_{n+1} - \gamma_n$ divided according to the ratio $m_n^{1/3} : m_{n+1}^{1/3}$,) it is found that the width $\Delta\gamma$ of the planetary (regular satellite) region is almost proportional to the size of the gravitational region $2x = 2(m/3M)^{1/3} \gamma$, the ratio $\Delta\gamma/2x$ decreases, outwards. The result is a strong support of the view that planets (solid planetary cores in the case of Jupiter and Saturn) and regular satellites are formed by the accumulation of plane-tesimals, and that they did not go through the stage of huge proto-planets and proto-satellites.

This paper was received for publication on 7 April 1975.

AUTHOR: CH'EN Tao-han [7115 6670 3352]

YANG Hsiu-i [2799 0208 5030]

WU Chih-hsien [2976 1807 6343]

ORG: All of Purple Mountain Observatory, Chinese Academy of Sciences

TITLE: "A Photometric Study of Eros 433"

SOURCE: T' IEN-WEN HSUEH-PAO [ACTA ASTRONOMICA SINICA] in Chinese Vol 16 No 2, Dec 76 pp 131-137

TEXT OF ENGLISH ABSTRACT: Three photoelectric observations of Eros made in Jan- Feb 1975 are presented. A new photometric theory of Eros based upon a three-axis ellipsoid model at full phase obeying Lommel-Seeliger's law is presented. Comparing the theoretical and observational light curves, we obtain the ratio of the axes of the ellipsoid model as $a : b : c = 1 : 0.334 : 0.148$, if the pole of D. Veseley is used.

This paper was received for publication on 12 June 1975.

AUTHOR: MU Ts'un-po [2606 2625 0590]
LIU Ts'ai-p'in [0491 1752 0756]

ORG: Both of Purple Mountain Observatory, Chinese Academy of Sciences

TITLE: "On the Structure of Cometary Dust Tails"

SOURCE: Peking T'IEN-WEN HSUEH-PAO [ACTA ASTRONOMICA SINICA] in Chinese
Vol 16, No 2, Dec 76 pp 138-166

TEXT OF ENGLISH ABSTRACT: The structure of cometary dust tails is studied in the frame of mechanical theory with special regards to three dimensional treatment of the problem. We begin with the reexamination of orbit mechanics of cometary particles to derive a set of formulae convenient to subsequent discussions and calculations. Making use of Hamilton's integral b , we have obtained, for example, the equation of orbit in a vectorial form with generalization respecting to force parameter μ (Part 2). On the basis of Part 2, we consider such problems as follows: the relation between initial conditions together with μ and the orbit characteristics; the algorithm for computer-calculation of the motion of particles some interesting features of elementary space distributions vertical motion relative to the comet orbit plane and its implications to the tail structure. Arguments given in §2.5 yield two important results. One is a criterion to check the applicability of the FP

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(Finson and Probst) method. The other concerns with the somewhat peculiar structure to appears in the dust tail of comet after perihelion passage, which might be termed as Neck-line structure (henceforce abbreviated to NLS.) In Part 3, we present a new interpretation of the anomalous tails referred to the concept of NLS. A discussion of the development of NLS is given, and it is shown that the emergence and development of NLS can provide an adequate explanation for the behavior of the anomalous tail of C/Arend-Roland, 1957 III. Furthermore, statistical consideration on the visibility of anomalous sunward tail is attempted, the result of which also shows that the NLS-interpretation seems to be compatible with the data since 1801. In Part 4, we develop a new method for numerical analysis of tail brightness. The basic idea of this method is to combine exact treatment of the motion of a large number of sample particles and counting-technique to estimate the surface brightness integral, taking account of the dust emission characteristics of comets which may be expressed by three source functions, namely, the emission rate $N_d(t)$, the modified size-distribution $f(\gamma; t)$ and the velocity distribution where $\Psi(\gamma; t)$ ($\gamma = 1 - \mu$.) Distribution of tail brightness thus obtained gives essentially the exact solution for the assigned source functions, in the sense that it is not affected by any auxiliary approximations. Moreover, no

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difficulties arise in the handling of source functions, because the requisite procedure can be reduced to the sampling of values of relevant parameters; thus the present method is applicable equally well for the case of anisotropic emission. In an application of the method for C/Arend-Roland (Part 4), we suppose that the emission rate varies as the inverse-square of heliocentric distance ($N_d(t) \propto [\gamma c(t)]^{-2}$), and that the velocity distribution is characterized as the isotropic one with a unique speed $v_0(t, \gamma)$. The function $f(\gamma; t)$ is left as one to be determined through the comparison with observation. The function $f(\gamma)$ for C/Arend-Roland, derived by neglecting its time-dependency is shown in Fig. 16. The corresponding brightness profiles are compared with observed ones in Figs. 14, and 15, for Apr 28 and Apr 30 respectively. It is worth noting that both main and anomalous tails have been treated in a unified manner, that is, without any temporal anomalies in emission characteristics. With these results, we conclude: (1) The simple forms presupposed for two functions ($N_d(t)$ and $\Psi(v; \gamma, t)$) may be well accepted as first approximations; (2) The derived function $f(\gamma)$ shows its broad peak around $\gamma = 0.10 \sim 0.12$ and possibly a secondary peak around $\gamma \sim 0.015$; (3) The present brightness analysis adds support, in a quantitative way, to the NLS-interpretation of the anomalous tails; (4) More observational data and careful analyses are needed, however, to establish the dust emission characteristics of comets.

[continuation of T' IEN-WEN HSUEH-PAO Vol 16, No 2, 1976 pp 138-166]

It is hoped that methods and viewpoints described in the present article may serve as the basis for future investigations.

This paper was received for publication on 30 June 1975.

AUTHOR: HANG Heng-jung [2635 1854 2837]
LIU Ju-liang [0491 3067 5328]
HU Fu-hsing [5170 0154 5281]
WANG Chen-ju [3076 3791 1172]
CHU Tzu-sheng [2612 1964 1004/4129]

ORG: HANG, LIU, HU of Purple Mountain Observatory, Chinese Academy of Sciences; WANG, CHU of Department of Astronomy, Nanking University

TITLE: "Spectral Variation of Nova Delphini Before Its December 1967 Maximum"

SOURCE: Peking T' IEN-WEN HSUEH-PAO [ACTA ASTRONOMICA SINICA] in Chinese Vol 16 No 2, Dec 76 pp 167-179

TEXT OF ENGLISH ABSTRACT: Spectral observations of Nova Delphini were made at Purple Mountain Observatory from 22 July to 5 October 1967. Dispersion of the spectrograms is about 153 Å/mm at H γ . In this paper its spectral characteristics and changes are described. The expansion velocities of the envelope are derived, and the spectrophotometric measurements are presented. From an analysis of the results, it is concluded: (1) Comparing the spectral feature of Nova Delphini with mainly the pre-maximum spectrum of DQ Her, the only Nova observed with complete spectral data, we find some common characteristics of the pre-maximum spectral variations of these Novae as follows: (a) The expansion velocity of envelope decreased with time and approached a constant value.

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(b) The color temperature of Nova decreased gradually only with minor fluctuations. (c) The intensities of some emissions lines, of which the excitation potentials or ionization potentials are higher, had a tendency to decrease relative to their continuous background. The characteristics described above must be taken into consideration in the investigation of the model and mechanism of the nova explosion. (2) The fact that the spectral variations of Nova Delphini have the pre-maximum characteristics during the protracted maximum stage, supports the following hypothesis adopted by W.C. Seitter: "In slow novae the pre-maximum halt which is normally of short duration or absent appears to be protracted as a direct function of the slowness of the nova." (3) The hypothesis of continuous ejection may explain the behavior of the pre-maximum spectral variation of Nova Delphini satisfactorily. This paper was received for publication on 5 May 1975.

AUTHOR: None

ORG: Second Laboratory, Shanghai Observatory, Chinese Academy of Sciences

TITLE: "Measurement of the Atmospheric Agitation at She-shan and Tsingtao by Allowing the Star Image to Trail"

SOURCE: Peking T'IEN-WEN HSUEH-PAO [ACTA ASTRONOMICA SINICA] in Chinese Vo 16 No 2, Dec 76 pp 180-188

TEXT OF ENGLISH ABSTRACT: This article describes the measurement of atmospheric agitation by taking photograph of the star trail at She-shan section of Shanghai Observatory and at Tsingtao Observatory. This paper was received for publication in March 1975.

AUTHOR: None

ORG: Solar Eclipse Observation Group, Peking Observatory, Chinese Academy of Sciences

TITLE: "Radio Observation of the Solar Eclipse of 22 September 1968 at the Wavelength of 21 cm"

SOURCE: Peking T'IEN-WEN HSUEH-PAO [ACTA ASTRONOMICA SINICA] in Chinese Vol 16 No 2, Dec 76 pp 189-199

TEXT OF ENGLISH ABSTRACT: Radio observation of the solar eclipse of 22 September 1968 at the wavelength of 21 cm was made in K'a-shih, Sinkiang by the expedition of Peking Observatory. The association of radio sources with the optical active regions is examined. Source flux densities, one-dimensional sizes, heights and brightness temperatures for these regions are given. The measure of emission from the sources above plages N^2L is calculated to be 1.8×10^{28} electron²/cm⁵.

This paper was received for publication on 13 May 1975.

AUTHOR: None

ORG: Eclipse Expedition Group of Peking Observatory, Chinese Academy of Sciences;
Eclipse Expedition Group of Nanking University

TITLE: "Radio Observation at the Wavelength of 3 cm During the Solar Eclipse of 22 September 1968"

SOURCE: Peking T' IEN-WEN HSUEH-PAO [ACTA ASTRONOMICA SINICA] in Chinese Vol 16 No 2, Dec 76 pp 200-209

TEXT OF ENGLISH ABSTRACT: Radio intensity measurements were performed with two radio telescopes at 3 cm wavelength during the eclipse of 22 September 1968. The data processing and the identification of S-component sources were described. The following parameters have been obtained: angular size (along the direction of the motion of the moon's center on the sun's disk,) flux density, average brightness temperature and height of the S-component sources associated with sunspots, plages, and coronal condensations during the eclipse. This paper was received for publication on 5 July 1975.

AUTHOR: CHANG P'ei-yu [1728 1014 3842]

ORG: Purple Mountain Observatory, Chinese Academy of Sciences

TITLE: "A Study of Records of the Solar and Lunar Eclipses in Scripts on Tortoise-shells or Ox-bones"

SOURCE: Peking T' IEN-WEN HSUEH-PAO [ACTA ASTRONOMICA SINICA] in Chinese Vol 16 No 2, Dec 76 pp 210-224

TEXT OF ENGLISH ABSTRACT: In this paper, five clauses of Jih-yu-chih [2480 0642 7299/2047], one clause of Jih-yu-shih [2480 0642 7380], and four clauses of Yueh-chih-shih [2588 0037 7380], all dated in accordance with Kan-chih [1626 2388] (a sexagenary cycle,) in the unearthed scripts on tortoise-shells or ox-bones up to the present were collected. It was calculated and proved in this paper that Jih-yu-chih and Jih-yu-shih both were records of solar eclipse phenomenon which were visible at An-yang under the reigns of Wu-i [2976 0044] and Wen-ting [2429 0002] in the Yin Dynasty; and Yueh-chih-shih were records of four lunar eclipses under the reign of Wu-ting in the Yin Dynasty. The dates on which the solar and the lunar eclipses took place were calculated. From among unearthed scripts on tortoise-shells or ox-bones up to the present, it is considered that all records concerning Jih-yu-shih, Jih-yu-shih, and Yueh-chih-shih have been collected. The studies in the past records of the solar and lunar eclipses in scripts on tortoise-shells or ox-bones as well as the results obtained were also discussed in this paper. This paper was received for publication on 17 May 1974.

AUTHOR: None

ORG: Solar Telescope Research and Production Group

TITLE: "400mm Horizontal Solar Telescope and Multiple Spectral Region Spectrographs"

SOURCE: Peking T' IEN-WEN HSUEH-PAO [ACTA ASTRONOMICA SINICA] in Chinese Vol 16 No 2, Dec 76 pp 225-228

ABSTRACT: The Solar Telescope Research and Production Group is composed of people affiliated with the Nanking Astronomical Instrument Plant and Purple Mountain Observatory of Chinese Academy of Sciences. For the purpose of observing the peak solar activities year 1968-1969, the group studied and constructed a horizontal solar telescope and a 10 frequency band automatic spectrograph for the Yunnan Observatory and a 9 frequency band automatic spectrograph for the Purple Mountain Observatory, in 1967-1968. The properties of these instruments are given with photos of sunspots taken by the solar telescope at the Yunnan Observatory.

AUTHOR: None

ORG: Stellar Divisions of the Peking Observatory and the Purple Mountain Observatory, Chinese Academy of Sciences

TITLE: "Nova Cygni 1975"

SOURCE: Peking T' IEN-WEN HSUEH-PAO [ACTA ASTRONOMICA SINICA] in Chinese Vol 16 No 2, Dec 76 pp 229-230

ABSTRACT: This paper reports the discovery of the Nova Cygni 1975 by many astronomers in China and the Hsing-lung Station of Peking Observatory independently at night on 30 August 1975. Judging from the photograph taken at Peking Observatory, the coordinates of the nova are right ascension $21^{\text{h}}10^{\text{m}}$, declination $+48^{\circ}.0$ (1950.0.) Spectroscopic plates taken at night on 31 August and 11 September at the Peking Observatory are reproduced in the paper. Beginning on 1 September, observations of the nova have also been carried out at the Purple Mountain Observatory.

This paper was received for publication in September 1975.

AUTHOR: CHANG Shou-chung [1728 1343 0022]

ORG: None

TITLE: "Colloquium on Solar Research"

SOURCE: Peking T' IEN-WEN HSUEH-PAO [ACTA ASTRONOMICA SINICA] in Chinese Vol 16 No 2, Dec 76 p 231

ABSTRACT: A colloquium on solar research of Chinese Academy of Sciences was held in K'un-ming, Yunnan Province on 15 April 1975. The participants included delegates of the various observatories, astronomical instrument plants, department and specialty of astronomy in related universities, and other departments. The developmental process of solar research work in China was reviewed. The solar eclipse observation work on 22 September 1968 in the Sinkiang region won high praise from the delegates. A total of 38 papers including the 14 reports of the observational results of the solar eclipse in 1968 in Sinkiang were presented. The delegates pointed out with emphasis that around the year 1980, there will be a peak year of solar activities. Preparations must be earnestly made to observe the phenomena. The joint observation work should also be coordinated with the work of observing the 1980 solar eclipse in the region of the Yunnan Province.

AUTHOR: CHANG Shou-chung [1728 1343 0022]

ORG: None

TITLE: "Conference on Time and Latitude Service"

SOURCE: Peking T' IEN-WEN HSUEH-PAO [ACTA ASTRONOMICA SINICA] in Chinese Vol 16 No 2, Dec 76 p 232

ABSTRACT: A conference on time and latitude service was held from 13 to 21 July 1975 in Tientsin. Delegates representing the various observatories, astronomical museums, astronomical instrument plants, departments of astronomy of related universities, and other related bureaus participated. A great deal of attention was given to the discussion of the problem of selecting polar coordinates to meet the condition in China and to a comparative analysis of several coordinate systems currently in use in the world. Reports of observations with the types I and II photoelectric astrolabes made in China were listened with enthusiasm by the delegates. Problems of a more reasonable distribution of time and latitude service work in China under the new conditions, of the application of new technology, and of developing the potential of old techniques and of coordinating the old and the new techniques were discussed also.

6168

CSO: 4009

SCIENTIFIC EXPERIMENT

AUTHOR: KUO Chien-yen [6753 1696 6056]

ORG: None

TITLE: "Fast Developing Architectural Engineering Technology in China"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 2, Feb 77 pp 1-3.

ABSTRACT: The author reviews the advances in home and industrial architectural engineering technology in China since the cultural revolution that includes; 1) development of a new construction structural system that involves adoption of prestressed roof sheets, reinforced concrete centrifugal pipe beams and pillars, short pile foundations, industrial waste hollow bricks, large steel tool face plates, and others; 2) mechanization of construction works by adoption of mechanical skips, all types of cranes, machine sprays, and other construction machinery; 3) prefabrication of most building components, such as inside and outside walls, floors, etc.; 4) development of a wall shearing force calculation method for tall buildings; an electronic

[Continuation of K'O-HSUEH SHIH-YEN No 2, Feb 77 pp 1-3]

computer general program, and a series of calculation tables to simplify engineering calculations; 5) establishment of an adjoining rock stability evaluation technique for design of underground structures; and 6) establishment of a deep underground construction thermometric method for underground draft and temperature lowering calculations.

AUTHOR: CHANG K'ai-sun [1728 7030 6676]

ORG: Shanghai Shaped Steel Tubing Plant

TITLE: "Metal Detection"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 2, Feb 77 pp 4-5

ABSTRACT: Using the applications of radio waves in the detection of the locations and directions of underground cable lines, determinations of metallic mixtures in materials, salvaging of sunken ship and machinery, and search of metallic materials in soils as examples, the author introduces the principles of utilizing the absorption and reflections of radio waves, the good conductance of metals, and eddy effect in metals as means of metal detection.

AUTHOR: None

ORG: Ch'ang-sha Mines Research Institute

TITLE: "T'ung-shan Shaft Mechanized Excavation Operating Line"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 2, Feb 77 pp 6-8

ABSTRACT: This article introduces the construction, components and performance of the Chinese self-designed, self-made and self-installed T'ung-shan completely mechanized shaft excavation operating line in Anhwei province. The mechanized operating line that consists mainly of drilling and blasting, mucking, installment of wall support, hoisting, and transport and dumping is characterized by its adoption of the new techniques of spray anchor support, laser direction, millisecond detonator, deep and bare blasting, parallel operation, and others. The operating line has proved to be labor saving, highly efficient, fast, safe, and economical.

AUTHOR: None

ORG: Peking Crane Plant

TITLE: "100-Tons Automobile Travelling Crane"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 2, Feb 77 pp 9-11, front cover

ABSTRACT: This article introduces the construction, performance, specifications and characteristics of the Chinese self-designed and self-manufactured model Q-100 automobile crane, jointly developed by the Peking Crane Plant and the Hunan Ch'ang-te Construction Machinery Institute. The crane, with a maximum hoisting capacity of 100 tons, and capable of 360° rotation, has a main boom length of 60 meters, and an extension boom length of 18 meters, and four outriggers, is mounted on a truck chassis with 6 gears, 12 tires, and a maximum speed of 50 kilometers per hour. The crane was used in Peking earthquake areas for four months, as well as other field works with satisfaction.

AUTHOR: None

ORG: This Journal

TITLE: "Colored Plastic Membranes in Early Rice Seedling Breeding"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 2, Feb 77 p 11

ABSTRACT: This article reports a two year research conducted by the Hunan Shao-yang District Agricultural Science Office on the effect of early rice seedlings under a canopy of red, blue or green polyvinyl chloride films. The results show that all colored films retains heat better than that of colorless, that the seedlings grow faster and healthier, as well as give higher rice yield under the blue film. The result of those grown under the red and green films is inconclusive.

AUTHOR: None

ORG: Peking Institute of Electrical Equipment, Chinese Academy of Sciences

TITLE: "Micromotors"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 2, Feb 77 pp 14-16

ABSTRACT: Based on an introduction to the construction, performance, applications and characteristics of the various types of micromotors according to use in control, driving and electric generations systems respectively, the article describes their applications in portable electric sprayers, radar automatic control system, and anti-aircraft guns as examples of their indispensability in modern agriculture and industries. It is reported that, since her liberation, China has established an independent system of its development and production, while some product of which has now been exporting abroad, especially to the Third World Nations.

AUTHOR: None

ORG: Heilungkiang Institute of Water Conservation and Heilungkiang Hydraulic Machinery Repair and Parts Plant

TITLE: "Model Lung-chiang 101A Sprayer"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 2, Feb 77 p 17

ABSTRACT: This article introduces the construction, performance theory and characteristics of model Lung-chiang 101A rocking sprayer for farmfield irrigation, jointly developed by the Heilungkiang Institute of Water Conservation and Heilungkiang Hydraulic Machinery Repair and Parts Plant. The sprayer, consisted mainly of three nozzles of large, medium and small sizes respectively, can spray 40 cubic meters of water per hour within a range of 38 meters. The sprayer is designed to coordinate with a 24 horse power diesel engine, a 3-57 centrifugal pump, and a 200 meters long hose.

AUTHOR: LI Ts'ai-kuang [2621 2088 1684]

ORG: T'ang-shan Health and Epidermic Caontrol Station

TITLE: "Safe Chemical Fertilizer Application"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 2, Feb 77 pp 21-22

ABSTRACT: The author describes the symptoms, and introduces some emergency treatment of nitrogen lime, ammonia, inorganic phosphate and other chemical fertilizer poisoning that are most common in the rural areas. It is stressed that active promotion of knowledge concerned with the poisonous characteristics of various chemical fertilizers, and establishment of a set of safe regulations and procedure of their handling, transportation, storage, preparation and applications are of prime importance in their control.

AUTHOR: TSENG Chao-hsün [2582 2507 5651]

ORG: None

TITLE: "Chin 451 -- A New Plant Growth Regulating Agent"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 2, Feb 77 pp 22-23, 34

ABSTRACT: The author introduces the characteristics of the new plant growth regulating agent, the Chin 451, that was successfully prepared from furaldehyde refuse by the Tientsin Synthetic Chemical Plant in 1970. Applications during the last six years has proved that the agent can increase the yield of grain crops by 10-15%, cotton by 10-20%, and much more for vegetables. Noted for its outstanding promotion of photosynthesis in plants, and combination of the superiority of growth hormones, gibberellin and mitochyson, while void of their defects, the agent can be applied in the form of seed impregnation, root moistening, plant spraying and root pouring, normally at a concentration of 150-600 ppm, with astounding effect.

AUTHOR: LI Feng-ch'i [2621 1496 8501]

ORG: Shansi Agricultural College

TITLE: "Vegetable Farmers Favor Plastic Canopy"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 2, Feb 77 pp 24-25

ABSTRACT: The author explains why plastic canopy is enjoying ever broadening adoption in vegetable farms throughout China during the past ten years. The advantages explained are: 1) better absorption of solar heat energy due to its good transparency; 2) better heat retention due to its low heat conductance; 3) ease of heat and moisture control due to its mobility; 4) better utilization of the solar radiation due to its good transparency to both visible and invisible sun rays; 5) affords selection of various colored plastic canopy to suit the breeding of different vegetables, and to control pests; and 6) affords easier regulation of carbon dioxide content and watering that favor vegetable growth.

AUTHOR: None

ORG: This Journal

TITLE: "Technological News Briefs"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 2, Feb 77 pp 26-27

ABSTRACT: This column reports six technological news briefs, namely: 1) a rubidium glass laser automatic punching machine jointly developed by the Shanghai Kuang-ming Lighter Plant and the Shanghai Laser Technology Experimental Station; 2) a hose sprinkler for mountainous areas developed by the peasants of Yunnan Yi Autonomous Chou; 3) GM-photosetting resin developed by the Tientsin Synthetic Material Industry Institute; 4) "930" self-coagulating denture powder developed by the Tientsin Oral Hospital; 5) model DJ74-2 electric scissor developed by the Tientsin Repair and Parts Service Company's Ho-p'ing District Machinery Repair and Manufacturing Plant; and 6) model Shanghai-130 mobile small clamp rice seedling pulling machine jointly developed by the Shanghai Ch'uan-sha Hsien Agricultural Machinery Repair and Manufacturing First Plant, the Ch'uan-sha Hsien Agricultural Machinery Office, and the Shanghai Agricultural Machinery Office.

AUTHORS: TSANG Mo [5258 4476]
LO Sang [3157 2718]

ORG: None

TITLE: "Tibetan Fungi"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese
No 2, Feb 77 pp 31-32

ABSTRACT: The authors give a general description of the abundant fungi resources broadly distributed throughout Tibet, namely: 1) the parasitic *Cordyceps Robertii* distributed over the alpine meadows at 4,200-4,700 meters altitude; and 2) the more than 80 fungi genera belonging to 32 families grown under the pine forest shadows at around 3,000 meters altitude, noted for their unusually large size, heavy weight and fine flavors, such as the *Auricularia auricula judae*, etc. Following a discussion on their economic values as food and medicine, it is reported that since Tibet's liberation, many fungi species have been developed, cultured and utilized as tonics, while some poisonous fungi as medicine.

AUTHOR: NAN Ti-ku [0589 2769 6253]

ORG: None

TITLE: "Evidence of Paleogeographical Changes from Paleontological Fossils"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese
No 2, Feb 77 pp 35-37, 3

ABSTRACT: The author introduces the general knowledge concerned with how studies of paleontological fossil characteristics are being applied to map the changing paleogeography of sea and land, and determine the changes of the paleoclimate, as well as the speed and rotation of the earth throughout the geological age as represented in an synopsis between geological age and biological history. On the basis of three paleogeographic maps of China of the Cambrian, Triassic and Devonian Periods, and two schematic diagrams of the lithofacies, and the depth of sea water, ocean biologic ecology, and sea floor crust characteristics of southern China of the Cambrian Period, the author discusses the significance of the change of the distribution of sea and land as well as the globe throughout the periods, and how they can be applied to predict and help the search for underground mineral resources.

AUTHOR: None

ORG: Laser Research Laboratory, Second Shanghai Medical College

TITLE: "Application of Laser in Medicine"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 2, Feb 77 pp 38-39, inside back cover

ABSTRACT: Based on a study comparing the hemostatic effect of laser knife against electric knife in surgery from animal experiment to actual clinical applications, which confirms the superiority of laser knife in controlling hemostasis, reducing the use of tongs and ligations, and drastically shortening the time of surgery, this article discusses the characteristic directional properties, sharp focusing and depth control, and almost instantaneous blood coagulating capabilities of laser knife, and its ever broadening applications in most medical fields, especially in the treatment of 86 diseases that it is now applying, following further improvement of laser technique, and development of newer laser sources. Inside back cover shows 5 illustrations.

AUTHOR: WANG Tao-chuang [3769 6670 5445]

ORG: None

TITLE: "Do Not Squeeze Facial Abscess"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 2, Feb 77 p 39

ABSTRACT: The author explains that, because there is always an inflammation protective ring surrounding the facial abscess, squeezing of the abscess, especially that at the "dangerous deltaregion" of the face, will destroy the protective ring, to enable the inflammation to scatter and infect other location of the face.

AUTHOR: TUNG Sheng [2639 0581]

ORG: None

TITLE: "Consequence of Sperms After Vasoligation"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese
No 2, Feb 77 p 39

ABSTRACT: The author explains that the sperms will still continue to produce, die, absorb and supplement in a relative equilibril state after vasoligation, and therefore will not affect the health of the person vasoligated.

AUTHOR: None

ORG: Omei Motion Picture Studio

TITLE: "Ichneumon Fly Control of Agrotis ypsilon Moths"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese
No 2, Feb 77 pp 40, back cover.

ABSTRACT: This article explains the 7 illustrations on the back cover, showing the life cycle of the parasitic Ichneumon fly, and how it controls the noctuid moth Agrotis ypsilon pest. The biological control technique is advocated on account of its economy, non-polluting, not harmful to human beings and animals, and simplicity.

AUTHOR: None

ORG: Chinese Communist Party's Shantung Chiao-nan Hsien Committee

TITLE: "Learning Ta-chai's Scientific Field Cultivation for High Yield"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 3, Mar 77 pp 1-2

ABSTRACT: This article reviews the achievement of Shantung Chiao-nan Hsien in transforming her 780,000 mous of lowly productive farm fields of 900 kan per mou by learning the Ta-chai spirit. The measures adopted include: 1) reformation of lowly productive hilly fields and saline-alkali and water logged marsh fields, and reclamation of seashores into highly productive farmfields; 2) adoption of the intercropping and multiple cropping systems in coordination with selection of good crop varieties, and promotion of scientific field management and up-to-date agricultural equipment and tools; and 3) strengthening of the Party's leadership in learning the Ta-chai's spirit, and promoting scientific research activities.

AUTHOR: None

ORG: Wu-ch'ang Power Plant

TITLE: "Converting Slags Into Phosphate Fertilizer"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 3, Mar 77 pp 3-4, 40

ABSTRACT: This article reports the development of a process whereby the slag from the power plant is converted into a calcium-magnesium phosphate fertilizer. The process involves combustion of low-grade or bituminous coal with a definite proportion and grade of phosphate ore and dolomite, addition of a cyclone furnace to boost the combustion temperature, quenching of the product, control of alumina and silica levels, and the final drying and pulverizing. The process has produced 40,000 to 50,000 tons of such phosphate fertilizer, while still maintains the normal power generation of the plant. Chairman Hua had expressed his concern by making several personal visits. A photograph of the plant is shown on the back cover.

AUTHOR: LO Chung-chou [7482 0022 3166]

ORG: Szechwan Mining College

TITLE: "Strip Mining of Coal"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 3, Mar 77 pp 5-7

ABSTRACT: The author introduces the general knowledge concerned with strip mining of coal that includes: 1) the ratio of strip, natural state of deposits, number and thickness of seams, and local climatic characteristics that determine strip mining of coal; 2) the main cycle of mining, transportation and dumping in the intermittent, continuous and semi-continuous strip mining, and the machinery involved; and 3) the lands, mining zones and transportation circuits in the nontransportation dumping method and the traverse internal earth dumping method in strip mining and their characteristics. It is reported that most exposed coal mines in China are of the level deposit type, and are located in the north, where the problem of severe cold winter must be coped.

AUTHOR: SHEN Fu-chun [3088 4395 6874]

ORG: None

TITLE: "From Piñe Cloths to Corduroy"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 3, Mar 77 pp 8-9

ABSTRACT: The author reviews how the Ch'ang-chou Corduroy Printing and Dyeing Mill developed and perfected the technique of printing and dyeing corduroys upon accepting a national assignment for such undertaking in 1954. The keys to their success include development of a combined brushing machine for brushing, improvement of a singeing machine for singeing, adoption of vacuum technique for loose and pressureless drying, and insistence of a unidirectional processing. It is reported that 50% of the thousand odd types of corduroys now produced in China are now being exported to more than 50 countries around the world that include Canada, Australia, New Zealand, USA, England, Japan, France, Hongkong and others. Illustrations in the article were drawn by Yu Tesheng [0205 1795 0524].

AUTHORS: YAO Shih-mou [1202 1102 6180]
SUN Shun-ts'ai [1327 7311 2088]

ORG: Kiangsu Provincial Institute of Geography

TITLE: "Development and Utilization of Shallow Natural Gas"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese
No 3, Mar 77 pp 10-12

ABSTRACT: The authors introduce the general knowledge and techniques concerned with the development and utilization of shallow natural gas in view of their broad occurrence in China, especially along the coastal plains in Shanghai, as well as Chekiang and Kiangsu provinces. The knowledge introduced includes: 1) the origin, distribution and types of natural gas resources; 2) the methods of drilling natural gas wells by manual boring, water jet and driving pipes, and how to construct the wells with reed bundles; and 3) utilization of the gas through direct burning, gas bag storage and gas tank storage, and how to manage them. Five schematic diagrams are included to show the methods of drilling and well construction.

AUTHOR: SUNG Ch'ao-shu [1345 2600 2873]

ORG: None

TITLE: "Prospective 'Four Sides' Forestation"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese
No 3, Mar 77 pp 12-13

ABSTRACT: The author describes the "four sides" forestation program alongside the houses, villages, roads and waterfronts, conducted at Hsia Hsien of Shansi province as an example of the beneficial effect of the program to agricultural production, and other related enterprises. The 20 years of massive forestation has so reduced wind velocity, increased humidity, and reduced frost, that crop production was doubled, while large quantity of organic fertilizers, fodders, lumber and fuel was derived from the leaves and trunks of the trees to drastically enrich the economy. An even more comprehensive and ambitious plan of much higher standards has now been drawn to further extend the program.

AUTHOR: WAN Ch'ang-sen [5502 7022 2773]

ORG: Loyang Bearing Institute

TITLE: "Bearings for Space Navigation"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese
No 3, Mar 77 14-15

ABSTRACT: The author introduces the construction, performance and characteristics of some typical bearings used in space technology, namely: 1) the single row centripetal thrust ball bearings in rocket engines; 2) the compass telecommunication bearings in space guidance systems; 3) the rotatory antenna bearings in the communication satellite systems; 4) the supporting frame bearings in satellite solar batteries; and 5) ground antenna bearings of the satellite communication systems.

AUTHOR: CHANG K'ai-sun [1728 7030 6676]

ORG: None

TITLE: "Neon Lamps"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese
No 3, Mar 77 pp 16-18

ABSTRACT: Based on an introduction to the construction, performance and characteristics of neon lamp, the author describes how it is being applied in test pencils, fire detection, protection of current meters, voltage control switch, and neon lamp oscillators. Schematic diagrams illustrating the performance theory of the respective circuits are also given.

AUTHOR: I Ch'ing [0122 3237]

ORG: None

TITLE: "Robots Approaching Reality"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese
No 3, Mar 77 18-20

ABSTRACT: The author introduces recent advance in the construction and performance of the various components of robots or mechanical man. While simulating all the fundamental structure of man, recent advances include electromagnetic claws that will adapt to the characteristics of work pieces, transmission system in various forms of driving by liquid pressure, and gas, electric and mechanical motivation, flexible, variable digital or electronic computer control systems, and the developing simulated sensory organs, especially the senses of touch and vision, by means of sensors, television camera, and electronic computers. It is anticipated that, in view of the ever broader demand of robots in industry, and the advances of electronic computers and other technology, robot perfection is fast approaching reality.

AUTHOR: LI Jung-ho [2621 2784 2773]

ORG: None

TITLE: "Planting Green Branches in Water -- A New Method of Xyloplant Multiplication"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese
No 3, Mar 77 p 2]

ABSTRACT: The author reports the development of a new technique to multiply xyloplants by planting green branches of the xyloplant of 1-2 years old in water, having the branches previously cut to the xylon, and the section in contact with the water container wrapped with paper. The temperature and level of the water must be carefully controlled and maintained. Callous will start to grow after 5-10 days, and root system after 20 days, and can be transplanted to ground or pot when the root is 3-5 centimeters long. The rate of growth varies with different xyloplants.

AUTHOR: None

ORG: Rice Seedling Pulling Machine Research Section, Institute of Agricultural Mechanization, Shanghai Academy of Agricultural Science

TITLE: "Rice Seedling Pulling and Rice Seedling Pulling Machine"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 3, Mar 77 pp 22-23

ABSTRACT: This article introduces the construction, performance theory and characteristics of four rice seedling pulling machines, which all simulate in their own ways the process of manual pulling of rice seedlings in the order of holding, clamping, pulling, delivering, evening of root length, washing, bundling and binding. It is admitted that all the machines have their individual shortcomings that remain to be improved.

AUTHOR: HSU Hao-min [1776 1170 3046]

ORG: None

TITLE: "Earth Light and Earthquake"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 3, Mar 77 pp 23-25

ABSTRACT: Following a description of five typical forms of earth light, and some instances of its effect on human beings, animals and plants from observations and occurrence surrounding the major Hai-ch'eng and T'ang-shan earthquake, the author discusses the causes of earth light, which could be a cumulative results of many years, but essentially is due to emission of radioactive or ionized liquid or gas through ground cracks into the atmosphere, and intensify the electric field to the extent that discharge luminescence occurred. It is pointed out that further research on earthlight may open a new approach to predict earthquake.

AUTHOR: LI Chih-sen [2621 2784 2773]

ORG: Yunnan Chao-t'ung District Foreign Trade Bureau

TITLE: "Chi-tsung Mushrooms and White Ants"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 3, Mar 77 pp 26-28

ABSTRACT: The author reports a study on the life cycle, habits and culture of the parasitic edible Chi-tsung mushroom that occur in the mountainous and valleys of Yunnan province, and noted for their gigantic size and weight, and that of its host, the white ants. The results confirm the optimal condition for the cultivation of the mushrooms in the white ant colony, and how the white ants can be caught, propagated and cultivated, and, if desired, have the colony transferred.

AUTHOR: None

ORG: Herbicide Research Section, Peking Institute of Botany, Chinese Academy of Sciences

TITLE: "Pai-ts'ao-hsi -- A New Herbicide"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 3, Mar 77 p 28

ABSTRACT: This article introduces the properties, characteristics and methods of applications of a new herbicide, Pai-ts'ao-hsi, for the control of darnel weeds in rice, soya bean, and corn fields. The herbicide consists mainly of α -methyl styrene, a byproduct of petroleum chemical industry, and carbon tetrachloride, and can be applied directly to the roots or the leaves of the crop.

AUTHOR: SHAO Jui-k'ang [6730 3843 1660]

ORG: None

TITLE: "Sunspots and Cold Waves"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese
No 3, Mar 77 pp 29-30

ABSTRACT: The author introduces the common knowledge of how the charged particles, consisted mainly of hydrogen and helium nucleus, emitted from the solarization of sunspots, manifested as aurora, and deflected by the magnetic field of the earth, affects the activity of cold air, and form eventually the cold waves in the polar and high latitude region, and finally influences the climate of the earth.

AUTHOR: CHIANG Yung-ming [1203 3196 2494]

ORG: Department of Chemistry, Kirin University

TITLE: "Secret of Biological Nitrogen Fixation"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese
No 3, Mar 77 30-31

ABSTRACT: The author introduces the common knowledge of the process of biological nitrogen fixation where nitrogenase acts as a catalyst for nitrogen fixation, ferro-oxygen protein and flavoprotein as reducing agents, ATP and Mg^{++} provides the energy, and water provides the hydrogen. It is anticipated that eventually nitrogenase can be cultivated or added into the field to fix nitrogen into nitrogen-containing fertilizer on the spot.

AUTHOR: WANG Ta-szu [3769 1129 5091]

ORG: None

TITLE: "Marsh Gas Bacteria"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 3, Mar 77 pp 32-33, 20

ABSTRACT: The author introduces the common knowledge of how best to produce marsh gas by inoculating and cultivating both the methane-producing and nonmethane-producing bacteria under anaerobic, neutral and controlled temperature conditions, the role of the two different types of bacteria, the selection and preparation of raw materials for the fermentation, and the techniques of controlling and managing the fermentation process to obtain most methane at the shortest possible time. A discussion is finally made on the importance of controlling the carbon: nitrogen ratio, and addition of human and animal excretes to the fermentation bath.

AUTHOR: TUNG Ching-hua [5516 2529 5478]

ORG: None

TITLE: "Lac"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 3, Mar 77 pp 34-35

ABSTRACT: Following an introduction to the characteristic properties of lac, and their specific applications in various industries, the author describes the life cycle, habits and resin excretion of the lac insects, their host trees, their artificial cultivation, and the methods of harvesting, processing and modifying the crude lac. It is reported that, since her liberation, China has established many bases in Yunnan, Kwangtung, Kwangsi, Kweichow, Szechwan and Fukien provinces for host trees plantation, lac insect cultivation, and lac processing and research.

AUTHOR: WU Kung-k'an [0702 0501 0170]

ORG: None

TITLE: "Treatment of Gastric Cancer"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 3, Mar 77 pp 35-36

ABSTRACT: The author introduces the general knowledge concerned with gastric cancer with regard to its pathogenesis, pathological changes, clinical symptoms, recent advances in early and accurate diagnostic techniques by new instruments and immunological technique, and the treatment coordinating surgery with drugs and radiation. It is reported that in view of China's self-manufacturing of fluracil and mitomycin, her successful extraction of the anticancerous alkaloid camptothecin from *Camptotheca acuminata* that has proved to be 60-70% effective against cancer, the large scale coordination of western therapy with traditional Chinese medicine, and the promotion of early diagnosis, the control of the disease in China seems to be within sight.

AUTHOR: None

ORG: Department of Internal Medicine, Anhwei Medical College Hospital

TITLE: "Hyperthyroidosis"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese No 3, Mar 77 p 37

ABSTRACT: This article describes three principal methods of treating hyperthyroidosis, namely: 1) long term drug administration; 2) surgery; and 3) radioactive iodine¹³¹ therapy. Since each method has their advantages and disadvantages, the method to be adopted should be based according to the characteristics of age, nature of goiter, degree of sickness, and the result of past treatment, the guidelines of which are given.

AUTHOR: None

ORG: This Journal

TITLE: "Technological News Briefs"

SOURCE: Peking K'O-HSUEH SHIH-YEN [SCIENTIFIC EXPERIMENT] in Chinese
No 3, Mar 77 pp 38-39

ABSTRACT: This column reports six technological news briefs, namely:
1) a medical two detection heads isotopic color plotter for the detection and diagnosis of liver and other cancer, jointly developed by the Mu-tan-chiang Electronic Plant and Harbin Medical University; 2) a new type of cement turning board construction material developed by the Canton Integrated Lumber Processing Plant; 3) model HRB-1S mixed combustible gas explosion meter jointly developed by the Peking Labor Protection Institute and Peking Tsung-wen High Temperature Instrument Plant; 4) model J₂-JD 2 second laser transit developed by the First Soochow Optical Instrument Plant; 5) a 4-way pulsimeter for traditional Chinese medical pulse diagnosis jointly developed by the Peking Medical Instrument Plant and Chinese Academy of Medical Science; and 6) a simple walking diesel engine tractor developed by Honan Ch'ang-ko Hsien Ho-shang Commune's Chia-chuang Production Brigade.

11,206
CSO: 4009

ACTA PHYTOTAXONOMICA SINICA

AUTHOR: None

ORG: Laboratory of Vegetable Fats and Oils, Yunnan Provincial Institute of Botany

TITLE: "Introducing an Edible Oil Woody Plant -- *Cleidiocarpon cavaleriei* (Lévl.) Airy-Shaw"

SOURCE: Peking CHIH-WU FEN-LEI HSUEH-PAO [ACTA PHYTOTAXONOMICA SINICA] in Chinese Vol 14, No 2, Nov 76 pp 57-60

ABSTRACT[Early in 1907, a French priest obtained an incomplete specimen of Hu-ti-kuo [butterfly fruit] from the southern part of Kweichow and sent it to H. Leveille who regarded it as a new species of the Genus *Baccaurea* and gave it the name *Baccaurea cavaleriei* Lévl. In 1965, the English botanist Airy-Shaw compared an incomplete specimen from Lo-tien of Kweichow with one from Katha of Burma and decided that they are 2 new species of a new Genus which he named *Cleidiocarpon* Airy-Shaw. In July 1973, during a visit to China, the Vietnam botanist FAN Wen-yuan [5400 2429 3293] brought specimens gathered from Vietnam. Chinese and Vietnamese botanists compared specimens of the respective countries and exchanged data and opinions of the plant. The conclusion of all concerned is that only one specimen exists in this new Genus. It is extensively

[continuation of CHIH-WU FEN-LEI HSUEH-PAO Vol 14, No 2, No 76 pp 57-60]

distributed in the 3 provinces of Yunnan, Kweichow, and Kuangsi of China, the northern part of Vietnam, and the northern part of Burma. Its seeds have a high content of edible oil and starch. Chemical analysis of the seeds and the oil are included in the paper.

AUTHOR: None

ORG: Fats and Oils Research Group, Peking Institute of Botany, Chinese Academy of Sciences

TITLE: "A Wild Species of Oil Plant Utilized by the Monba Nationality People of China for a Long Time"

SOURCE: Peking CHIH-WU FEN-LEI HSUEH-PAO [ACTA PHYTOTAXONOMICA SINICA] in Chinese Vol 14 No 2, Nov 76 pp 61-62

ABSTRACT: The people of the Monba [Men-pa 7024 1572] Nationality of the southeastern part of Tibet recommended the wild plant, P'o-pu-mu [Ragwood] to the Chinese Scientific Survey Team in 1974. Edible oil has been obtained from both the meat and the nut of the fruit for a long time by the people. Five species of this Genus *Cordia* are distributed in China: *C.subcordata* Lam. in Hsi-sha and Hainan Islands of Kuangtung; *C.cumingiana* Vidal. in Taiwan; *C.furcans* Johnst. in South Yunnan, South Kuangsi, and Hainan of Kuangtung; *C.dichotoma* Forst. f. in Tibet, Fukien, Kuangtung, Kuangsi, and Yunnan; and *C. cochinchinensis* Gagnep. in Hainan of Kuangtung. Physical and chemical analyses of the fruit and the oil it produces are also reported in the paper.

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CSO: 4009

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