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METEOROLOGICAL EDUCATION IN THE LAST DECADE

-COMMUNIST CHINA-

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METEOROLOGICAL EDUCATION IN THE LAST DECADE

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In the last 10 years, meteorological education in new China has undergone a rapid development under the correct leadership of the Party and government and by depending upon the masses.

In old China, meteorology was an unpopular field, and merely existed. Evidently, the supplementary element, meteorological education, was even in worse shape. Teachers in this field were scarce and their quality was doubtful. Instruments and facilities were poor.

Besides the meteorological departments of three universities established for advertisement purposes, no other institutes existed in this field. Students majoring in this field were also scarce. The handful of them were seldom faithful to their study and hence what they learned did not justify their application.

After the liberation, the meteorology enterprise in China was established rapidly. The building of meteorlogical stations, the demand for the service and scientific research encouraged the continuous progress of meteorological education. In the last 10 years, besides strengthening the meteorological departments of Nanking University and Peiping University, the government established one meteorological institute and three intermediate level meteorological schools.

Besides these, two meteorological departments at agricultural universities and one attached to the military academy have been established. the functions of all these institutes are separated in order to train technical personnel in various branches so that the demands of all meteorological organizations and research centers in their development can be guaranteed.

The development of meteorological education in new China is a difficult course but as yet no obstacle has not been summounted. The difficulty was during the starting stage. Then, only Nanking University and Peiping University [had meteorological schools] and they could not provide more than a week foundation for development.

Other institutes actually had to start their programs empty handed. Their common experiences as they developed can be divided into three phases; namely, their coming into existence from nothingness, their growth in size and their development from simplicity into complexity.

The advantages in their development was the strong leadership of the Party and their dependence upon the masses. Though various difficulties confronted us in various periods, we overcame all of them.

In 1952, based upon a series of political movements, a nationwide re-organization [of meteorological organizations] on departmental levels was carried out. The former Division of Meteorology under the Geography Department of Chekiang University and the former division of Meteorology under the astronomy department of Ch'i-lu University moved to Nanking and combined with the original Department of Meteorology of Nanking University. The result of this reorganization is the present Department of Meteorology of Nanking University.

To meet national requirements, the Department of Meteorology [at Nanking University] was divided into two subdivisions, namely, the Division of Meteorology and the Division of Climatology. Besides, two-year training classes were started to meet urgent needs.

In 1956, to improve the quality of personnel in this field, the original four-year training system was replaced by a five-year system, and the two-year training classes were discontinued.

From 1949 to 1958, the number of technical personnel trained by the Department of Meteorology of Nanking University was eight times the total number trained within the 20 years preceeding liberation.

In 1958, because of the forward leap in agricultural production, artificial control of weather was demanded of meteorological science. Experiments to produce artificial rain were carried out on a large scale, and a special division of the Department of Meteorology of Nanking University was established to meet that need.

The former aerodynamics meteorological and aerophysics [programs?] of the Geophysics Department of Peiping University were evolved from the Department of Meteorology of Ch'ing-Hua University. During the departmental re-organization in 1952, the Department of Meteorology of Ch'ing-hua University was combined with the physics department of Peiping University. This resulted in the division of the Meteorology Department of Peiping University.

In 1959, the Division of Meteorology and the Division of Geophysics of the Physics Department of Peiping University were combined to form the Geophysics Department. There are now two subdivisions under the aerophysics programs of the geophysics Department of Peiping University.

In 1952, in order to meet the urgent needs of various meteorological units, a two-year training course was given, and in 1954, graduate students were enrolled. In 1955 the training period was changed to five years. In 1958, a correspondence course was organized to improve the quality of working personnel.

In 1959, the training period was further changed to five and a half years. Recently training programs are being revised for further education of personnel who have already had a good foundation in basic theories and are capable of solving practical problems.

In the last few years, various universities have supplied several hundred workers to various meteorological units. Some of them have raised their own abilities considerably through work experience and have become basic responsible workers and technological research members.

The meteorological Training School of the People's Liberation Army and the Peiping School of Meteorology grew out of short period training courses. Now they have become well established institutes.

The Peiping School of Meteorology is the first such middle level training school in the history of meteorological education. It consists of a high altitude division of meteorology, a division of agricultural meteorology, a division of general meteorology, and the associated meteorological special training class, the advanced class for experienced personnel, the instrument class and the correspondence school.

Faculty members total nearly 100, and the school can enroll 1,700 students. All teaching facilities, such as the physics laboratory, chemistry laboratory, botany laboratory, work shops in various fields and general work shops are basically well equipped with the required instruments.

Besides the training school in Peiping, there are two schools of a similar nature in Szechwan and Kwangtung provinces. The school of meteorology in Kwangtung has an oceanography division. Because of the rapid development of the meteorological enterprise, various provinces have started to establish schools of meteorology. Up to this summer over 10 such schools have been established.

An outline of the development of meteorological education in new China can be clearly seen from the brief report on the above mentioned three meteorological institutes.

In the last 10 years, the development of meteorological education has been accompanied by many great changes; obvious successes have been achieved and advantageous conditions created for further development.

What has been done in meteorological education?

Firstly, all faculty member have received ideological education, and the ideological education of the students has been strengthened.

The Communist Party and the government have always emphasized the self education and self improvement of in-

tellectuals. Political workers and executives of various departments and institutions have been thoroughly carrying out the policy of uniting, educating and improving the intellectuals. Special attention has been given to their work and, among others, their political activities. In the last 10 years, on the basis of the victorious nationwide thought rectification and anti-rightist action, a series of political movements were conducted.

These movements have assumed such forms as "the two-way" movement, wide spread discussion among the communist professionals [Party members?], criticism of capitalistic educational and academic thinking, the effort to quality oneself to shoulder great responsibilities by doing hard work while advancing from the bottom to the top, working in the country and factories, participation in iron and steel production, and in harvesting, cultivating and seeding in the autumn. Thus, the working consciousness, class consciousness and mass consciousness of the meteorology students and teachers was strengthened.

In addition, the understanding of socialism and communism was improved. Meteorology instructors as well as instructors in other fields realized that, as teachers of the people, they must be Marxists and Leninists, they must be communist professionals, they must consider their duty as a glorious one, and they must release the potentiality of their class consciousness and creativeness to attain high achievements.

Students who actually worked in the farm areas and factories fully realized the significance of the relationship which exists between meteorology and the socialistic economic construction. Hence their production consciousness was strengthened and their professional consciousness was consolidated. As a result, their academic achievement was elevated and their general health was improved.

Going deep into revolutionary ideology provides favorable conditions for revolutionary education. A change of view point among the meteorology students and instructors on various levels will help to "redden" their ideology. This is the primary objective of socialistic education.

Secondly, the policy of putting emphasis on training industrial and agricultural staffs has been carried out.

Because of the emphasis on training agricultural and engineering staffs, composition of meteorology students on various levels began to change. The number of students from agricultural and engineering fields has increased.

Various meteorology institutes, especially the Meteorological Training School of the People's Liberation Army and the intermediate level training schools, have established classes and preparatory classes for agricultural and industrial workers.

In addition, attention and special aids given to students of agriculture and engineering during their study is a concrete measure used to realize the policy of emphasizing the training of agricultural and industrial workers. The experiments involving such training have proved that agricultural and engineering students are capable of learning meteorology.

Because of their political leadership consciousness, and clearly defined purpose, they have been studying extremely hard. Though having difficulties at the beginning, their finalachievement turned out to be excellent.

Thirdly, the obligations of various meteorology institutes have been well defined. In improving instruction, the policy of following the progressive experiences of the Soviet Union and fitting them into practical situations in China has been realized.

The four years from 1949 to 1952 was a period of rehabilitation, improvement and construction in meteorological education in new China. Improvement in instruction began in 1952.

Following the general educational policy of "combining theory and practice, training devoted workers so they have a good foundation in Marxism and Leninism, high academic qualifications, and have accomplished modern technological and scientific achievements," various meteorology institutes have assumed different obligations. Institutes

of special trainings have been established acording to the national construction plan, and educational aims of various schools have been clearly defined.

In 1952 on the basis of learning from the Soviet Union teaching plan, her teaching program and her curriculum, the educational system of China was planned in such a way that all the above must fit into the practical situations, needs and permissible conditions of China.

Meteorology schools of various levels, according to their various training purposes, separately set up their own educational plans and principles of instruction.

In general, however, all schools have adopted such new instruction procedures as related to class instruction, laboratory experiments, practical experience in observatories, exercises, class discussions, practice in teaching, production experiences, thesis writing and participation in scientific research. With such training, the standard of their teaching was raised and their capacity to deal with practical problems was increased.

All instruction materials were translated from Soviet publications. Special instruction materials of various schools were arrangements of Soviet instruction materials. Instruction materials used to meet general requirements are stipulated by the Central Education Bureau.

After the political rectification movement, the political atmosphere of all educational organizations has undergone a basic change. In 1958 students and instructors were required to study the educational policy of "education for serving the proletariat," and the policy of "combining education with production." They were also required to study education directives issued by the Central Committee and the State Council.

Under the leadership of Communist officials the policy of cooperation between Communist officials, instructors and students was adopted and through it and "let a hundred flowers bloom" movement and earnest discussions, training plans were revised and curriculums were changed.

The actual (production) work of the meteorology service was put under the educational plan, the proportion of political sciences was increased and new arrangements were made for studying other technical fields. Furthermore, arrangements were made for students to gain practical experience in various meteorological services and also in school laboratories when they returned to school.

Arrangements were also made to do research under the guidance of instructors. All the above are measures used to carry out the educational plan of the Party, which is characterized by the combination of "teaching, actual production and scientific research."

Fourthly, a great number of instructors were trained to establish a stronger meteorology teaching unit.

It is said that "it takes 10 years to grow a tree but 100 years to educate a mature person." The training of instructors is not analogous to creating a shadow by erecting a post. The shortage of instructors is the main difficulty in the development of meteorology. The development of meteorological enterprise in new China is being carried on so fast that the same rate of development is required in the field of meteorological education.

To meet the needs of the rapidly developing meteorological enterprises with a large scale supply of instructors, the training of Communist instructors of meteorology became a critical problem.

At the same time to improve instruction methods and raise academic levels, it is necessary to elevate the instructors' political thinking and intensify their specialization.

The "use of two legs" policy was adopted in training instructors, that is, continuation of their study on the job or off the job was carried on. Various schools have adopted definite plans for training instructors.

In 1954 the meteorology unit of the Physics Department of Peiping University and the Department of Meteorology of Nanking University began to enroll graduate students.

Various training schools sent their instructors for advanced training with definite purposes. Nanking University and Peiping University sent their instructors to the Soviet Union to continue their studies. After they graduated, they returned to their jobs. What is more important is the condinuation of study while teaching. And, all schools emphasize the cooperation between junior and senior instructors. Junior instructors are advised to learn humbly from senior instructors, and senior instructors are oblidged to help and advise the junior instructors so that the knowledge of their specialization can be increased, and their teaching ability can be improved.

Through actual teaching experience, the progress of young instructors is fast. The number of teachers has increased many times. Teachers of several intermediate level meteorology schools are doing construction work while teaching.

On the basis of teaching and studying simultaneously, the complete curriculum of meteorology is covered. Besides, participation in research is also a way of facilitating the learning of teachers. In a word, the emphasis on the training of meteorology instructors made possible the establishment of a teaching army.

Fifthly, the large scale promotion of scientific research was made possible by combining teaching and actual production work.

Various institutes emphasized scientific research in the past. Motivated by their actual work experiences, all scientific activities as well as research in the meteorology institutes underwent rapid development. The result became obvious after the nationwide rectification movement.

The purpsoes of research are to elevate the teaching abilities of instructors to permit the meteorology schools to play their proper role in national research and to properly handle important research suggested by various meteorology units and research units. In addition to research done in connection with teaching subject matter, some important research not within this area was also carried out.

There are many examples. Under the direction of the Central Meteorology Bureau, the Meteorology Department of Nanking University has undertaken research on the possible change of weather in the area of San-hsia after the reservoir is completed there. The research unit consists of seventy members who are now carrying on surveys in that area.

In addition, they have also participated in improving desert conditions in the northwest. Cooperating with the Geophysics Institute of the Academia Sinica of China and with Anhwei Province, they carried out experiments in creating artificial rain.

A new arrangement was made by Peiping University, when carrying out the preliminary instruction readjustment, and in 1955 it accepted the assignment of the Central Meteorology Bureau to do research in creating artificial rain and research in the inspection and design of instruments. Good results were achieved.

Under the leadership of Soviet specialists, young instructors have made contributions in turbulence research. In 1958 Peiping University also accepted the assignment of the Yangtze River Valley Planning Committee, in cooperation with the Central Meteorology Research Center, to handle the long range weather forcast work in the middle and upper stream areas of the Yangtze River.

Students and instructors trained in laboratories of climatology and meteorology dynamics have done a great amount of work and have drafted preliminary weather forcast procedures. These procedures are being used experimentally.

In 1956the aerophsics laboratory accepted an assignment to study the surface vaporization of Kuan-tin Reservoir. This kind of research is still limited in China. However, the making of instruments and surveys have shown good results. In addition, cloud dispersion experiments have been made, and in experiments to create artificial rain, many experimental cloud observation instruments were made.

Recently, joint research in the physical properties of clouds carried out in conjunction with associated units

have been carried out. It also joined the Geophysics Institute of the Academia Sinica in designing the Yangtze River Dam and in flood research so that the preliminary design of the San Hsia Dam may be done. In addition to the above mentioned urgent joint research projects connected with national construction, such basic research as vapor balance and transfer model experiments of circulation in the atmosphere and formation of hurricanes have also been carried out.

The progress of meteorological education in China is obvious in the last decade. But we are not content with what has been achieved because defects and problems are still numerous. Meteorological education is still far behind its objective demand. It is without any doubt that the obligations and difficulties before us will be greater and greater as the construction of the socialistic state of China moves forward.

But we firmly believe that under the correct leadership of the Communist Party and the people's government and by depending on the masses, we can train a younger generation of Communist specialists who are meteorology workers in both theory and practice. They shall be able to achieve greatness in meteorology for China. Meteorological education is pulsating synchronously with the over-all development of China. Our country is rising as the sun while the bright future of meteorological education will add to its glory.

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