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ASTROPHYSICAL OBSERVATORY MAKES NEW DISCOVERIES;
GEOPHYSICS OBSERVATORY CELEBRATES ANNIVERSARY

BYURAKAN OBSERVATORY DISCOVERS STELLAR ASSOCIATIONS -- *Kommunist*, No 282, 1 Dec 49

The newest observatory in the Soviet Union is the Byurakan Astrophysical Observatory of the Academy of Sciences Armenian SSR, located in Byurakan, 1,500 meters above sea level. It was established in 1945.

The Byurakan Observatory began its observation work in 1947. In a short time, it became widely renowned for its important scientific discoveries. In 1947-48, V. A. Ambartsumyan discovered the existence of new stellar systems forming the Galaxy. This discovery brought about an important change in our conception of the origin of stars and of celestial bodies in general. Many idealistic astrophysicists assumed that all stars composing the Galaxy were formed in some very remote epoch billions of years ago, and that, at present, star-forming processes are no longer occurring. The discovery of stellar associations appeared as evidence of the existence of isolated groups of young stars formed from other, formerly unknown heavenly bodies -- the so-called protostars (protozvezd). The discovery of these stellar associations proves the point of view of Soviet cosmogonical science, namely, that the formation of stars and other heavenly bodies is continuing at an intensive rate.

A group of astrophysicists under the direction of V. A. Ambartsumyan are now carefully studying the composition of stellar associations, the nature of their individual component stars and their spatial distribution, and are investigating the absorption of star light in interstellar space. At the same time, work is being done in discovering new stars and studying variations in existing ones.

In 1949, the observatory received the newest Soviet apparatus. Not long ago, the largest spectrograph in the world for the investigation of nebulae was installed. The spectrograph was designed and built at the Leningrad Optical Institute. Its originality lies in the fact that it is set up in two units: one unit is located in a deep ravine and the other unit at the crest of a cliff. Such an arrangement makes it possible to isolate small areas of distant nebulae and to subject them to spectral analysis.

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In addition, a 10-inch reflector-spectrograph, devised by Professor O. Mel'nikov to serve in the study of physical properties of stars, was installed. The first investigations using the reflector-spectrograph showed that it was possible to penetrate far into the ultraviolet region of the star spectrum. Never before had it been possible to do this in any foreign observatory.

During the summer, a group of co-workers of the Byurakan Observatory ascended Aragats, where they took photographs of star spectra.

In 1947, the observatory began to publish its *Soobshcheniye* (Reports), which described the investigations carried on in Byurakan. So far, four issues have been published.

At present, a great deal of construction work is being done at the observatory. According to the plan of the Professor S. A. Safaryan, Associate Member, Academy of Architecture USSR, a central laboratory building and living quarters for co-workers are being erected. The plan also provides for the construction of observation towers and pavilions, to which apparatus will be moved from the present temporary locations and installed permanently. Construction work is expected to be completed in 1951. -- S. Arevsha'yan

GEOPHYSICS OBSERVATORY PREPARES MANUALS -- *Sovetskaya Latvya*, No 257, 30 Oct 49

The 100th anniversary of the Glavnyy Geophysics Observatory imeni A. I. Voyeykov, the oldest and largest observatory in the Soviet Union, was celebrated by a 2-day meeting held on 28 and 29 October. The meeting was held in the Academy of Sciences USSR in Leningrad and was attended by workers from the observatory, representatives from scientific societies, and guests. During the first day, speeches were made by V. P. Pastukh, Candidate of Geographical Sciences, and S. A. Sapozhnikova, Doctor of Geographical Sciences.

The Soviet Union now has two hydrometeorological institutes and several technical schools for training cadres to become hydrometeorological specialists.

At present, scholars are conducting large expeditions to study lakes, seas, rivers, and swamps. A book containing basic hydrological information on the USSR is now being prepared for printing. *Spravochniki po Vodnym Resursam SSSR* (Manuals of Water Resources of the USSR) and other basic works on the USSR climate have already been published. Detailed climatic manuals dealing with each oblast have also been compiled. The final product of this work will be the volume, *Bol'shoy Klimaticheskiy Atlas Sovetskogo Soyuza* (A Large Climatic Atlas of the Soviet Union). A general magnetic survey of the USSR was carried out and maintenance of radio facilities in the USSR was supplemented by forecasts on the passage of radio waves. Moreover, important scientific research was undertaken on the general circulation of the atmosphere, on relationships between atmospheric phenomena and the sun's activity, on drought and the dry south wind, and on permafrostology.

To answer questions concerning agriculture, a volume called *Mirovoy Agroklimaticheskiy Spravochnik* (A Universal Agricultural Climatic Manual) has been published. Considerable work has gone into the composition of oblast agricultural hydrological manuals and into the study of local peculiarities of microclimate and its effect upon the development of agriculture.

Long-range seasonal and monthly forecasts of the weather, based on the method developed by the Soviet scholar, Academician Mul'tanovskiy, are now being worked out in the USSR.

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In 1949, the Latvian SSR had a completely equipped and developed network of observation and information stations and posts. The hydroelectrical station network is ultramodern. In addition, the Riga Geophysics Observatory, an agricultural meteorological station, and an estuarine hydrometeorological station in Riga have been founded.

To increase harvests, agricultural meteorological work was begun and widely developed in Latvia. At present, a great deal of work is being done in hydro-meteorology. So far, climatic manuals of Latvian SSR, hydrological, agricultural, meteorological, and marine annuals based on observations taken over a number of years, and a report on 21 rivers have been compiled. Research is now continuing to determine the radiational equilibrium of Riga Bay and soil freezing in Latvian SSR.

TBILISI GEOPHYSICAL OBSERVATORY MEETS -- Zarya Vostoka, No 231, 26 Nov 49

The Tbilisi Scientific-Research Geophysical Observatory held a session in Tbilisi dedicated to the 100th anniversary of the Main Geophysical Observatory imeni A. I. Voyeykov in Leningrad. The session was opened by K. Gogishvili, chief of the Administration of hydrometallurgical Work of Georgian SSR. Scientific co-workers made speeches about the history of the A. I. Voyeykov Observatory and the work being done in the Tbilisi Observatory.

ASTRONOMICAL OBSERVATORY UNDER CONSTRUCTION -- Leningradskaya Pravda, No 280, 29 Nov 49

The Main Astronomical Observatory USSR in Pulkovo is again under construction. The main building and several new pavilions and towers will be completed in 1950. Modern astronomical equipment in the buildings will include a horizontal solar telescope, designed by N. G. Ponomarev and D. D. Maksutov, and a large 65-centimeter refractor. By means of a polar tube, circumpolar stars will be photographed for the determination of the so-called astronomical constants.

The towers have rotating cupolas which will be used by astronomers for photographing stars. Apparatus used will include a quartz spectrograph of Professor O. A. Mel'nikov's design and a mirror-lens telescope designed by Professor G. G. Slyusarev.

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