

## V.P.TSESSEVICH - A SCIENTIFIC SUPERVISOR OF THE ODESSA OBSERVATORY EXPEDITION ON THE DETERMINATION OF LATITUDE AND LONGITUDE FOR BTA POSITION SITE

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**ABSTRACT.** In the paper one from little known pages of Prof. V.P.Tsessevich' life and scientific activity as an organizer and scientific supervisor of expedition on the determination of coordinates of site, where BTA would be placed, is described. V.P.Tsessevich have formed a staff of expedition, scientific problems and have taken direct part of the first and final stages of the expedition. As a result of expedition coordinates which corresponded to requirements of astroplace of the second class (expeditionary) have been obtained and axes of BTA have been traced on the locality.

**Key words:** coordinates, astroplace, organization of expedition.

In his versatile activities, V.P.Tsessevich exerted special efforts and contributed much to creating new astronomical institutions. He took a direct part in the founding of Abastumani and Dushanbe observatories, GAO (Main Astronomical Observatory) of the Academy of Sciences of the Ukrainian SSR, of observing stations at the Odessa Observatory, promoted to arranging and equipping observatories in a number of Pedagogical Institutes, in Kherson Naval College, in some secondary schools as well as in the Planetaria organizations. For grounding of organizing each of the above institutions these of those scientific problems were put forward ( for example, provision for long-term continuous series of observations of short-periodic or flare-variable stars, basis meteor observations etc.); some years elapse and it be-

comes as clear as noon day that V.P. used to be immensely glad of and feel great satisfaction with the mere fact of every astronomical observatory inauguration and his personal participation in it. The reason of it may lie in the obvious truth that a real scientist gets satisfied subconsciously with raising intellectual level of the ambient community. Personal contacts in his youth with such outstanding astronomers as S.P.Glazenap, A.Ya.Orlov and others are certain to have affected it, too.

Therefore, when in April 1965 O.B.Vasilyev, Director of an observatory under construction SAO (Special Astronomical Observatory, Academy of Science of the USSR), requested V.P.Tsessevich for rendering help in the determination of precise coordinates for future BTA position, V.P. immediately gave a ready consent. The expedition was suggested to be headed by B.V.Novopashennyi, a well-known Odessa astrometrist, highly experienced in astronomical and geodetic observations. The thing is that the unusual construction of the BTA-set ( an alt-azimuthal type for a large telescope is a unique design) required high precision in laying out construction lines of the site to provide necessary directions of channels for light beams. The suggested project requirements were with corresponded to the determination of the astroplace as that of the second class ( expeditionary). V.P.Tsessevich had to pluck certain courage of taking the decision for such works used to be carried out practically in monopoly under the aegis of GUGK USSR,

and the results since some time were considered as secret ones. The coordinates of our observatories, if it necessary, were taken from foreign Year-books, so the execution of the work like that could have been fraught with some consequences.

It was high time for the direct construction works to be started at the Semirodnyky Mount not far from Zelenchukskaya stanitsa in the Northern Caucasus, however precise position of the BTA site was not known yet. The geodetic authorities to whom future SAO administration had appealed made doubts the dates of realization this work as well as of reduction for astronomical refraction under high altitude conditions. In May 1965 O.B.Vasilyev sent a telegram to V.P.Tsessevich asking for the expedition to arrive immediately and promising on his part to do all preparatory work and settle all the organizational problems. Suddenly it turned out that B.V. Novopashennyi was unable to participate in the expedition because of his poor state of health. Nevertheless, V.P.Tsessevich did send an expedition which included the then quite young specialists – the authors of the present information. It is worth remembering that there was little experience in a total volume astroplace's determination among the expedition participants though they possessed some certain skill in astrometrical observations (e.g. observations with an universal instrument and the meridian circle, the work at the AES observational station). And it was there that one of Tsessevich's merits was fully manifested, and namely his firm belief of his colleague's competence and capacities, in their capabilities of which they themselves hardly suspected, as well as his own ability of taking responsibility for young specialists' activity and conduct – it was at our request that V.P.Tsessevich headed the expedition.

In early June the expedition of four people went by air to Mineralnye Vody. The equipment comprised a 5" universal instrument "Aerogeopribor" No.1302 (it was carefully checked up by the mechanic A.A.Podlubny beforehand) and an apparatus for providing time service which was used at the AES station No.073, Odessa. Unfortunately, despite of all mecha-

nic's efforts exerted we failed to completely get rid of some instability in the vertical axle of universal instrument. Due to this, the quantity of observed Zinger's and Talkott's pairs had to be increased for providing necessary precision of results. At the Minvody airport we were met by O.B.Vasilyev and the scientific supervisor of SAO, O.A.Melnikov at that time. After a short talk the latter left for Pulkovo. Having climbed up the mountain we found out the future BTA site to have been quite untouched by human beings' activities. And the highway engineering was only under way, the road reached only the place of today's RATAN position. In the Mount itself there stood a small sheep-fold wherein two herdsmen lived and were busy grazing bull-calves, rather frisky ones. O.B.Vasilyev arranged delivering a small carriage as "spacious" as one sleeping compartment to the Mount as well as a small local power station working on petroleum only and a barrel of petroleum. At the very place a stone tomb was built for observations with the universal instrument; whereas to guarantee observers' safety against too curious animals we were given a document signed by the kolkhoz chairman testifying to the fact that the cattle was prohibited to pasture there. In case of emergency we were handed a gun which we had to use several times for getting food. After solving some technical and organizational questions jointly with O.B.Vasilyev and being convinced of the possibility of starting the expedition work V.P.Tsessevich left for Odessa having promised to come back by the completion of observational work to put documents in order.

On June 20th 1965 observations were started. A report devoted to the scientific aspect of the matter is presented to Russia astrometrical conference (October 1993, Pulkovo) at the section "Applied problems of astrometry". It should be noted here only that within 9 nights suitable for observations, through July 9th, 28 determinations of latitude were done from the Polar star altitudes (an approximate method), observations were made of 43 Zinger's pairs for determining longitude and of 24 Talkott's pairs for precise determining latitude. Besides, the

astronomical azimuth of a stone pyramid which was built by the expedition participant at the mark of 2059.6 m (near the BTA center) was determined by 8 total methods from the Polar and by 7 total ones by the Sun. A number of auxiliary angular measurements were made and the azimuth of BTA center determined.

The observations were carried out by M.Yu. Volyanskaya, the observational programs and reductions were made by M.Yu.Volyanskaya and O.E.Mandel, where as time service was conducted by Yu.D.Russo. For registered time, the standard equipment of No.073 station of AES photographic observations was used incorporating a receiver of PRV-type, pulse adapters IP-1 and IPM, a quartz printing chronograph ECL. For determining a zero-point of chronograph, RVM-signals were received (5 MHz, Moscow). The results of the work were handed to the head of LO GI-PRONII, Academy of Sciences of the USSR, G.D.Vsesvietsky (on the Act) jointly with whom the axes were traced on the place. It

was also he who together with engineers of SAO, which was being built then, carried out the laying out of BTA axles on the plane.

The final stage of the work was performed with V.P.Tsessevich's participation, his signature remaining in the corresponding documents. The expedition returned to Odessa but soon went to Nikolaev observatory (main longitude point) for determining personal equation of observer. After final reduction of observational results, latitude and longitude data of SAO, Ac.Sc.USSR were given to the SAO authorities. On returning to Odessa one of the participants remarked jokingly addressing V.P.Tsessevich, "So, Professor, are you going to change your profession of an astrophysicist for that of an astrometrist?" Vladimir Platonovich responded to this seriously: "I'm asking you not to forget that in my diploma it is written that I am Professor of Astronomy". Indeed, Vladimir Platonovich was a great specialist in all the fields of astronomy, a real PROFESSOR of our wonderful science.