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## CORRESPONDENCE BETWEEN THE ACADEMICIAN EVGENY FEDOROV AND TSOU YI-HSIN: MATERIALS TO THE HISTORY OF LATITUDE INVESTIGATIONS

*Setting a high value on such component of historical studies as the history of science the authors refer to the history of astronomical surveys development. In current paper special attention is given to the establishment and development of scientific institutions in the sphere of latitude observations. Particularly, the activity of Poltava Gravimetric Observatory, which was established in 1926 and played a role of fundamental gravimetric post connected to the world gravimetric network, is covered separately.*

*The correspondence between astronomical scientists could be used as a valuable source for studying latitude investigations in the 20s century. In this work we present the texts of nine letter written in English, which are a part of correspondence between Ukrainian Soviet astronomical scientist E.P. Fedorov and Chinese scientist Tsou Yi-Hsin. The correspondence took place from 1957 to 1965 and ended up with the beginning of the Cultural Revolution in China in 1966-1976. Letters presented in the article contain information concerning the training of Chinese astronomers in the Soviet Union and establishment of latitude observations in China.*

**Keywords:** *E.P. Fedorov, Tsou Yi-Hsin, Ukraine, People's Republic of China, Soviet Union, USSR, International Astronomical Union, International Latitude Service, Poltava Gravimetric Observatory.*

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## ЛИСТУВАННЯ АКАДЕМІКА ЄВГЕНА ФЕДОРОВА ТА ЦЗОУ І-СІНЬ: МАТЕРІАЛИ ДО ІСТОРІЇ ШИРОТНИХ ДОСЛІДЖЕНЬ

*Надаючи великого значення такій складовій історичних досліджень, як історія науки, автори торкнулися історії розвитку астрономічних досліджень. У даній роботі особлива увага приділена становленню та діяльності наукових установ у галузі широтних спостережень. Особливо розглянуто діяльність Полтавської гравіметричної обсерваторії, що була заснована у 1926 р. і була фундаментальним гравіметричним пунктом, пов'язаним зі світовою гравіметричною мережею.*

*У якості цінного джерела до вивчення історії широтних досліджень у ХХ ст. може використовуватися листування вчених-астрономів. У даній публікації наведено тексти дев'яти листів, написаних англійською мовою. Вони є частиною листування українського радянського вченого-астронома Є.П. Федорова та китайської вченої Цзоу І-Сінь. Спілкування між цими науковцями тривало протягом 1957-1965 рр. та перервалося з початком "культурної революції" у Китаї 1966-1976 рр. У запропонованих листах містяться інформація про стажування китайських астрономів-широтників у Радянському Союзі, становлення широтних спостережень в Китаї.*

**Ключові слова:** *Є.П. Федоров, Цзоу І-Сінь, Україна, Китайська Народна Республіка, Радянський Союз, СРСР, Міжнародний астрономічний союз, Міжнародна служба широти, Полтавська гравіметрична обсерваторія.*

## ПЕРЕПИСКА АКАДЕМИКА ЕВГЕНИЯ ФЕДОРОВА И ЦЗОУ И-СИНЬ: МАТЕРИАЛЫ К ИСТОРИИ ШИРОТНЫХ ИССЛЕДОВАНИЙ

*Придавая большое значение такой сложной составляющей исторических исследований, как история науки, авторы коснулись истории развития астрономических исследований. В данной работе особое внимание уделено становлению и деятельности научных учреждений в сфере широтных наблюдений. Отдельно рассмотрена деятельность Полтавской гравиметрической обсерватории, которая была основана в 1926 г. и была фундаментальным гравиметрическим пунктом, связанным с мировой гравиметрической сетью.*

*В качестве ценного источника для изучения истории широтных исследований в XX в. может использоваться переписка ученых-астрономов. В данной публикации приведены тексты девяти писем, написанных на английском языке. Они являются частью переписки украинского советского ученого-астронома Е.П. Федорова и китайской ученой Цзоу И-Синь. Общение между этими исследователями продолжалось в течение 1957-1965 гг. и прервалось с началом “культурной революции” в Китае 1966-1976 гг. В представленных письмах содержится информация о стажировке китайских астрономов-широтников в Советском Союзе, становлении широтных наблюдений в Китае.*

**Ключевые слова:** *Е.П. Федоров, Цзоу И-Синь, Украина, Китайская Народная Республика, Советский Союз, СССР, Международный астрономический союз, Международная служба широты, Полтавская гравиметрическая обсерватория.*

The progress of the mankind is closely related to the development of scientific knowledge. Moreover, evolution of any science is based on the efforts of a human to understand and conquer the environment and the desire to explore the unknown. That's why in order to understand the process of humankind society development completely it is necessary to pay great attention to such component of history as the history of science.

Astronomers have been trying to solve the mysteries of the Universe for many millennia. Today astronomy is a science studying the origin, development and properties of objects observed in the sky (outside the boundaries of the Earth) as well as the processes connected to them. The astronomers research stars, planets and their satellites, comets and meteorites, nebulae, stellar systems, etc.

The United Nations declared 2009 the International Year of Astronomy (IYA2009).

Astronomy has long been connected to geodesy and geophysics. Thus, as early as in 1895 International Association of Geodesy decided to establish a special latitude service to perform systematic research in order to receive more accurate data allowing to study the movement of the poles of the Earth in detail. It received the name of International Latitude Service (ILS). In 1899 the first network of six astronomical stations near 39° north latitude was established and came into operation [7, p. 147].

The investigations in this sphere were based on close international collaboration. So, during the 20<sup>th</sup> century other latitude stations, including those from the Soviet Union (USSR), joined to the execution of latitude observations. It is remarkable that Gravimetric Observatory in Poltava (Ukrainian SSR) was one of the most powerful scientific institutions in the area of latitude observations. It was a fundamental gravimetric point connected to the world network where during many years the measurements of gravity were executed and such phenomena as the shifts of Earth poles and tides in the Earth crust were studied.

Poltava Gravimetric Observatory was founded in Poltava by academician O. Ya. Orlov. Initially it was subordinated to the Ukrainian Central Chamber of Measures and Weights, but in 1936 it came under the jurisdiction of the Academy of Sciences of the Ukrainian SSR, and since 1964 it has been part of the Subbotin Institute of Geophysics.

Since 1939 astronomical observations of the changes of Poltava latitude are being conducted in Poltava Gravimetric Observatory using several instruments: Zeiss and Bamberg zenith telescopes, Danjon prism astrolabe, zenith telescope ZTL-180 (3TJI-180). The results of these observations have allowed to receive important fundamental data about the shifts of the Earth Poles and to study some particular effects of the Earth rotation (for example, the influence of the liquid Earth core). In May of 1953 Poltava Gravimetric Observatory became the centre of latitude service in the USSR.

It is remarkable that in Poltava Gravimetric Observatory for the first time ever in the world daily nutation was calculated basing on the astronomical investigations, which confirmed the existence of the liquid Earth core. Moreover, on the basis of longterm observations of the ground surface dynamics the methodology for seasonal vertical movement of soil layers forecasting exclusively according to the data of precipitation was developed. Poltava set of observations over bright stars knows no equals in the world practice of latitude observations.

The names of such prominent scientists as O.Ya. Orlov, E.P. Fedorov, Z.N. Aksentyeva, M.A. Popov, V.G. Balenko, Ju.K. Gulak, D.D. Ivanenko, Ya.S. Yatskiv, V.G. Bulatsen are connected to the activity of the Poltava Gravimetric Observatory. In this particular observatory worked E.P. Fedorov (1909-1986), who later became an academician of the Academy of Sciences of Ukrainian SSR. He conducted vigorous scientific and organizational activity, connected to the Earth rotation. E.P. Fedorov even held the post of the Chief of the Committee on the Earth rotation exploration of the Astronomical Council of Ac.Sci.USSR. During 1955-1961 he occupied the position of the President of the Commission 19 "Rotation of the Earth" of the International Astronomical Union and was actively involved in the operation and reorganization of the International Latitude Service, which in 1962 was transformed into International Polar Motion Service at the suggestion of E.P. Fedorov

In 1956-1958 latitude observations developed extremely extensively in the world. This was favored by the conducting of the International Geophysical year in 1957/1958 and of the International year of collaboration in 1959 [1, sh. 17]. During the International Geophysical Year 67 countries executed geophysical observations according to single research program and methodology. Moreover, it lead to the building of a latitude station in Tientsin, People's Republic of China [3, sh. 63], which was later headed by Chinese astronomical scientist professor Tsou Yi-Hsin.

Tsou Yi-Hsin was born on the 5th of June 1911. She graduated from Sun Yet-Sen University, Canton, in 1932, and then she worked in the Observatory of the University. In 1935 the astronomer was sent to Japan to improve her knowledge of Practical Astronomy. Tsou Yi-Hsin spent about one year at Tokyo Imperial University Observatory and Tokyo Observatory. After having returned from Japan she kept on working in the above mentioned University Observatory up to 1948 and at the same time was occupied as a lecturer, then assistant professor and, lastly, professor of that University and the director of the Observatory.

In 1948 Prof. Tsou Yi-Hsin obtained a grant from the Commission 38 of IAU (Exchange of Astronomers) to study at the Royal Greenwich Observatory for eight or nine months. In 1949 she was at the Edinburg Observatory, Scotland and the Cambridge Observatory, England. It was mentioned in Transactions of the IAU, Vol. VIII, page 602: «A second woman astronomer worked for the space of two years at various Observatories in Great Britain – second year with the aid of a grant from the British Council. She has returned home with greatly increased knowledge in a wide range of subjects in which there was no opportunity of gaining experience in her own country».

She returned to China in 1951 and continued her professorship at the same University for one year and then worked at the Purple Mountain Observatory, Academy of Science, Nanking, China from September 1951 and took charge of a new Tientsin Latitude Station. During the period of 1957-1958 she had been learning latitude works in Moscow, at Pulkovo [Main Astronomical Observatory of National Academy of Sciences of the RSFSR] and at Poltava [Gravimetric Observatory of Poltava] [6].

The correspondence of this scientist with E.P. Fedorov, who she called a teacher, sparks an enormous interest. This correspondence is deposited in the archive of the Archival Institute of Vernadsky National Library of Ukraine in the fond 250 “Fedorov Yevgen Pavlovich (the 26<sup>th</sup> of June 1909 – the 8<sup>th</sup> of November 1986) – astronomer, academisian Ac.Sci.Ukr.SSR (1969)”. The letters of Tsou Yi-Hsin and E.P. Fedorov represent a valuable source for the study of the latitude investigations historiography in the 20<sup>th</sup> century and of the scientists’ fruitful biographies.

Apart from describing the character of communication between the two scientists – of the teacher and the pupil, they also contain information concerning practical training of Chinese latitude astronomers in the USSR, the establishment of latitude observations in PRC and the collaboration of a famous soviet astronomer E. P. Fedorov with Chinese colleagues.

The correspondence between two astronomers had begun as far back as the time of Tsou Yi-Hsin training in the USSR. In her letter of 1958 she shares her impressions of her visit to Tashkent and latitude station in Kitab (Letter 1).

After the return to PRC her communication with E.P. Fedorov continued, which is evidenced from their correspondence. In her letters Tsou Yi-Hsin informs E.P. Fedorov about the process of the Tientsin Latitude Station setting up and discusses problems which were arising while mounting the equipment. Initially, Peking University ordered zenith-telescope at Carl Zeiss Jen Company, but there emerged a delay in executing the order [2, sh. 3]. In the end, the latitude station received the equipment from the USSR (Letters 2, 3, 4).

When a limited network of five latitude stations began to develop rapidly and more stations, including already existing and new ones, particularly those from Mongolia and PRC, were joining the network, the issue of the quick access to special literature on latitudinal subject, to the reporting information of ILS and the results of latitude observations became extremely pressing. E.P. Fedorov helped to solve this outstanding problem for Chinese astronomers via the exchange of literature and providing methodological aid in the organization of latitude observations for the team of young latitude station (Letters 5, 6, 7).

During 1958-1964 spirited debates took place among astronomers and geodesists about the reorganization of International Latitude Service and burning problems were discussed. Chinese astronomers engaged in the operation of this service, including the representatives of the latitude station in Tientsin, were also concerned about these issues. The correspondence between the Head of the latitude station Tsou Yi-Hsin and E. P. Fedorov provided the opportunity to “have a finger on the pulse” (Letters 8, 9).

As a whole, the correspondence of the astronomers E.P. Fedorov and Tsou Yi-Hsin lasted over 1957-1965 and discontinued with the beginning of the Cultural Revolution in China in 1966-1976.

In current work we provide authentic texts of nine letters. All of them are written in English, but there are some words and phrases in Russian in letters. Saving the peculiarities of original documents we give the translations of such words. We introduce the Chinese scientist in the article preamble as Tsou Yi-Hsin, but in the letters several versions of her name spelling could be found (Zsou-Yi-Sin, Tsou Yi-Hsin, Thsou Yi-Hsin, Yee-Hsin Chu). Fragments which couldn’t be read because of illegible handwriting are marked as /.../.

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3. ІА НБУВ, ф. 250, оп. 1, спр. 92. 65 арк.

4. ІА НБУВ, ф. 250, оп. 1, спр. 163. 2 арк.

5. ІА НБУВ, ф. 250, оп. 1, спр. 254. 12 арк.

6. ІА НБУВ, ф. 250, оп. 1, спр. 294. 1 арк.

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5. AI NLU, found 250, description 1, case no. 254. 12 sheet.
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## Letter 1

Проф. Федоров

1958, I, 22<sup>nd</sup>

Полтавская обсерватория

Полтава УССР<sup>1</sup>

Dear Prof. Федоров,

I sent you one letter from Moscow and left four small gifts at the Foreign Dept. for giving to your Director (Зинаида Николаевна<sup>2</sup>), Николай Андреевич, Фрося and Катя<sup>3</sup>.

We arrived Ташкент<sup>4</sup> on 31st December last year. I thought our stay at Ташкент and Китаб is very short, we learn some valuable knowledge there (the mounting, adjustment of АПМ-2 з. т [zenith-telescope], publications some International Latitude stations, some papers of Kimura, Carnera, Cecchini, Nicolini,...).

Now, we are on the train for returning home at will write to you when I arrive Tientzin.

Please sent our thanks to your Observatory for sending us telegram dated 31<sup>st</sup> Dec. last year to Китаб<sup>5</sup> (for new year).

Sincerely yours,

Цзоу И-Синь<sup>6</sup>

at the station Отпор<sup>7</sup>

in a great hurry.

This letter had not got the opportunity to be sent out, the Postage stamp (1 руб.<sup>8</sup>) on its envelop) prove it to you.

*AI NLU, found 250, description 1, case no. 254, sh. 2.*

## Letter 2

I should report to our Observatory and to all concerning organizations that what I have learnt in your Country. Poltava is the place that I stayed longest, so, if possible, please send me (to Тяньцзинь<sup>9</sup>) two copies of my «справка»<sup>10</sup>, it would be much appreciated. An addressed envelope with airmail stamp on is enclosed, please send it by registered post and add some stamp on. The two addressed labels are enclosed for sending literatures, books and publications.

Our young observer received Алла's letter<sup>11</sup> with thanks. We give her 5<sup>+</sup> for her handwriting of our Chinese address.

АПМ-2 had arrived here two month before my arrival. It is very strange that we could not find any eyepiece in any wooden case. I wrote a letter to Софья Васильевна and Владимир Иванович<sup>12</sup> yesterday, to ask their Kindness to consult with the manufactory.

There are some stain-spots on the instrument. It seems that it suffered damp. I heard that all wooden cases of instrument were put inside the paralon since 25th dec.

Now all of us are waiting for the mechanics and eyepieces from Ленинград<sup>13</sup> and hope to get a level-examinator.

Which best wishes waiting for your letter.

Your student, Цзоу И-Синь.

*AI NLU, found 250, description 1, case no. 254, sh. 12.*

### Letter 3

Poltava,  
1958, March 3  
My dear Prof. Zsou-Yi-Sin,

I must apologize for not answering your letter earlier: it reached Poltava when I was at Pulkovo, and I seize the first free time to write to you after having returned home. Thank you very much indeed for your presents which you mention in your letter. I can scarcely give you an idea how all of us were touched with your kindness.

As you had asked me I remitted 1800 p. to ПАНЬ ЦЗЮНЬ-Хуа<sup>14</sup>. You can find the bill enclosed herewith. I send you also ОТЗЫВ which you wished to have. I have ventured to add to this ОТЗЫВ several sincere words expressing my personal opinion of your work in the field of latitude investigation. I shall be happy if this remark is useful for you.

From my part I have one request to you too. I suppose to write a popular paper about recent progress of work pertaining to the problem of the pole motion. This paper is intended for the magazine «Природа»<sup>15</sup> and to brighten it up I should like to illustrate it. May I ask you to send me as soon as possible some photos of your station? Those pictured the zenith-telescope in the process of installation would be of an utmost interest.

Waiting for news from you,  
sincerely yours,  
E.P. Fedorov

*AINLU, found 250, description 1, case no. 163, sh. 1.*

### Letter 4

[Prof.] Федоров,

Tientsin №2  
1958, April 6

Just after received your letter several photographs went sent to you about three weeks ago.

Two specialists from the manufactory arrived Tientsin on the 18th march and have been doing their work since the 19th last month.

Now, the main parts of АИМ-2 have been mounted up except the east photovisual telescope for the Talcott's levels. These few days the adjustments of the vertical and horizontal axis have been in proceeding.

It is very kind of the manufactory and of these her specialists that they brought us all necessary articles and they decided to alter the whole electrical scheme to a new and best one by following the good experiences of ГАИШ.

Our photography is so bad that all photos are not good at all, only four photos can be enclosed herewith.

Thank you Observatory and you for the two «ОТЗЫВ» which give me a lots of helps and encourage me very much. (Because owing to these two ОТЗЫВ somebody of our Academy promised to order one level-examinator and one chronograph from СССР<sup>16</sup> for the Station and promised to send the order for the level-examinator с/о Prof. Михайлов!<sup>17</sup>)

Have you determined the sale of your P / . . . / Chronograph again? What is the final value of R of з. т. Bamberg we got? Do you agree that I recommend your zenith-star method for determining R to our astronomical conference which will be held in Nanking? If your shot note of that method published in А. Ц. please sent me one copy.

With best wishes to everyone of your Observatory.

your student  
Цзоу И-Синь.

*AINLU, found 250, description 1, case no. 254, sh. 4.*

## Letter 5

President E. P. Fedorov,  
Poltava Observatory

Tientsin Station  
10th May, 1959

Our Dear President Fedorov,

We are very glad to receive your letter dated 24 April and thank you very much for giving us encouragement, and asking Prof. Melchior to send me Vol. 9 of Results of ILS which I could not yet.

We are in need of the correction for  $d$  of each pair of International programme, but not for the group means. Because the correction of each group had been already computed in Poltava by us in 1957. We have used these corrections  $d\Delta$  to compute our latitude observations of completed groups, but we don't know how to treat the incomplete groups.

The rest money deposited in the bank in Poltava belongs to me, please ask somebody to buy some books or copy some papers for me, time by time. I hope very much to get the reports on ЗТЛ-180 in the 13<sup>th</sup> conference of Soviet Astrometry in 1958, in the 10<sup>th</sup> conference of IAU, and the results of International stations since 1957.

When and where will the 4th conference of Soviet Latitude carry on?

Your student

Цзоу И-Синь.

PS. How do you think that when we should send our observation-book to Central office? What is its address?

Yesterday, I could not find the envelopes of the former type and had to buy some as the enclosed once (9 envelopes have been sent by ordinary mail). I will try to find the former type and will sent you when I get them.

*AI NLU, found 250, description 1, case no. 254, sh. 5.*

## Letter 6

Тяньцзинь,  
X, 27, 1961

Our Dear President, my Dear Teacher Fedorov.

Three weeks ago, after my summer holidays? I received the two /.../ publications, my gratitude is beyond my power of expression.

I think, you have only one copy. They have been sent to make microfilm and were sent back to you yesterday. I beg your pardon to this delay.

Your student

Цзоу И-Синь

*AI NLU, found 250, description 1, case no. 254, sh. 6.*

## Letter 7

С праздником!<sup>18</sup>

We are very glad to know that the great work «Каталог склонений звезд программ зенит-телескопа в системе FK4...»<sup>19</sup> had been finished and published. Would you be so kind as to send me one copy.

With best wishes to your family.

Цзоу И-Синь

1964, X, 29

*AI NLU, found 250, description 1, case no. 254, sh. 10.*

## Letter 8

Prof. Thsou Yi-Hsin  
Director of the Tintsin  
Latitude Station  
Tientsin,  
China.

The Main Astronomical  
Observatory of the  
Academy of Sciences of the  
Ukrainian SSR  
Kiev 41,  
29 March, 1961

Dear Professor Tsou Yi-Hsin,

It gave me great pleasure to receive your presents and even greater pleasure to learn from Prof. Shcheglov that you were well.

More than a year ago I was entrusted with the directorship of the Main Astronomical Observatory of the Academy of Sciences of the Ukrainian SSR and moved from Poltava to Kiev. My new address is Kiev 41, the above Observatory. The bad side of my new position is that I cannot find now as much time as in former times for the work on the latitude problem. Meanwhile, this problem requires now more attention than ever before. Owing to bad health Prof. Cecchini intends to desert his post of the Director of the Central Bureau of the International Latitude Service. So it is urgent to decide where this Bureau will be in future and who should be nominated its new Director. Moreover, it is generally recognized that the whole organization of the latitude service needs reconsideration. To discuss future organization of this service some scientists interested in this matter met in Helsinki last autumn.

I am sending you the resolution of this meetings and, in a separate cover, the collection of papers presented to the meeting.

Several months ago I received a letter from the Secretary of your Observatory concerning possible utilization of your latitude observation in the computing the polar co-ordinates by the Soviet Latitude Service. First of all I should like to have the results of your observation to compare them with the polar co-ordinates already computed. Thus I shall appreciate receiving variation of latitude of your Observatory from the beginning of regular observations up to the present. Monthly means or normal points is all that I need.

I shall be grateful also for your permission to use these data in the computing polar co-ordinate together with the data obtained from other observatories both Soviet and foreign. This work is now in progress at our observatory.

I must apologize for not sending you newly edited books as you had requested before leaving Poltava. I promise to atone for my negligence in the future.

With every best wish.

Yours sincerely,  
E.P. Fedorov

*AI NLU, found 250, description 1, case no. 163, sh. 2.*

## Letter 9

2nd, Post  
21, XII, 1963

Our dear Teacher Fedorov.

We have not got any news from you two years. How are you?

Have you received the envelopes and my letters which had been sent about three month ago?

I never forget our friendship and the great helps of Soviet Astronomers.

Please tell me the address of Dr. Paul Melchior.

It would be much appreciated if you would sent or lend me the followers:

1. Any news, any publication dealing with meridian Observations of ILS-stars and determination of proper motions  $\mu$ .



2. The preliminary results of International latitude stations for 1961.
  3. On the Present state and the future of Latitude Investigations. Collection of papers № 2, Москва<sup>20</sup>. If it was published.
  4. Предварительные результаты Исследований колебаний широты и движения полюсов земли<sup>21</sup> № 3, № 4.
  5. Труды 4-й Всесоюзной широтной конференции<sup>22</sup>.
- With best wishes for Happy Year 1964 Your students Yee-Hsin Chu.

*AI NLU, found 250, description 1, case no. 254, sh. 8.*

**Comments:**

<sup>1</sup>Проф. Федоров, Полтавская обсерватория, Полтава, УССР – To Prof. Fedorov, Observatory Poltava, Poltava, Ukrainian SSR

<sup>2</sup>Зинаида Николаевна – Zinaida Nikolaevna. Zinaida Aksentieva (June 25, 1900 – April 8, 1969) was a Ukrainian/Soviet astronomer. She became Poltava Gravimetric Observatory director in 1951.

<sup>3</sup>Николай Андреевич, Фрося and Катя – (Nikolay Andreevich) Nikolay Popov – Senior Scientist of Poltava Gravimetric Observatory; (Frosya) Bobovoz Efrosin'ya – Astronomer and Librarian of Poltava Gravimetric Observatory; (Катя) Ekaterina Evtushenko – Research Scientist of Poltava Gravimetric Observatory.

<sup>4</sup>Ташкент – Tashkent. The capital and largest city of Uzbekistan.

<sup>5</sup>Китаб – Kitob is a town in Kitob District of Qashqadaryo Region in Uzbekistan.

<sup>6</sup>Цзоу И-Синь – Tsou Yi-Hsin.

<sup>7</sup>station Отпор – The old name of the city of Zabaykalsk. On China's request, in 1958 the Soviets changed the name «Отпор» to the neutral Zabaykalsk.

<sup>8</sup>1 руб. – 1 ruble or rouble. In this case - the cost of a postage stamp.

<sup>9</sup>Тяньцзинь – Tientsin. Is a metropolis in coastal northeastern China and one of the five national central cities of China.

<sup>10</sup>справка – reference.

<sup>11</sup>Алла's letter – Letter from Alla. Alla Korsun' – Astronomer of Poltava Gravimetric Observatory.

<sup>12</sup>Софья Васильевна and Владимир Иванович – Sof'ya Vasil'evna and Vladimir Ivanovich. Sof'ya Voroshilova-Romanskaya – the Scientist of The Central Astronomical Observatory of the Soviet Academy of Sciences at Pulkovo. Vladimir Sakharov – the Scientist of The The Central Astronomical Observatory of the Soviet Academy of Sciences at Pulkovo.

<sup>13</sup>Ленинград – Leningrad. Is the former name of Saint Petersburg, is the second largest city in Russia.

<sup>14</sup>Пань Цзюнь-Хуа – Pan' Tszyun'-Khua.

<sup>15</sup>"Природа" – "Priroda" (eng. "Nature") – magazine published since 1912. Now the monthly popular scientific journal of the Russian Academy of Sciences, whose publications are devoted to natural science topics.

<sup>16</sup>отзыв – evaluation.

<sup>17</sup>СССР – USSR, Union of Soviet Socialist Republics.

<sup>18</sup>Prof. Михайлов – Aleksandr Mikhailov (1888-1983) – Russian astronomer who was a member of the Soviet Academy of Sciences. He worked at Pulkovo Observatory from 1947 to 1982.

<sup>19</sup>С праздником – Congratulations.

<sup>20</sup>«Каталог склонений звезд программ зенит-телескопа в системе FK4...» – «Catalogue of the declinations of stars programs of zenith-telescope in the system FK4»

<sup>21</sup>Москва – Moscow. Is the capital and the largest city of Russia.

<sup>22</sup>Предварительные результаты Исследований колебаний широты и движения полюсов земли – Preliminary results of Researches of oscillations of latitude and polar motion of the Earth.

<sup>23</sup>Труды 4-й Всесоюзной широтной конференции – Studies of the 4th All-Union latitude conference.