

September 25, 1957

**Meeting of the Ministry of Defense Industry with
Representatives of the Chinese Delegation**

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Summary:

Domrachev and the Chinese representatives discuss an article which states that the USSR will render assistance in the planning and creation of two research institutes in China for rockets and guidance equipment. It is decided that Chinese resources can enable the creation of no more than two institutes. Domrachev outlines the projected costs of the planning and technical documentation of the institutes, as well as the cost of construction materials.

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STENOGRAM

The meeting of workers of the Ministry of Defense Industry with representatives of the Chinese delegation, 25 September 1957

Comrade Qian Xuesen, Chinese delegation:
Requests a discussion of article 14.

Cde. DOMRACHEV:

This article is formulated in the following way: "For research into the development of an armed reactor guidance system, including the development of gyroscopic instruments and autopilots, the Government of the USSR will render assistance in the formation of scientific research blueprints on the given matter." In the planning of the protocol, prepared by c. Pervukhin in the name of the head of the Chinese delegation, it is written that we will take on ourselves the formation of the plans for such an institute. What would you like to look over in this article?

Com Qian Xuesen, Chinese delegation

The essence of the question is the following: the Soviet Union will render aid in the planning of two identical institutes, or less for the first institute, and more for the second one.

Cde. DOMRACHEV:

The Chinese side requests the planning of two institutes, and we will do this. After the signing of the agreement we can discuss the rendering of practical aid to these institutes. If it turns out that a portion of the equipment for the institutes cannot be produced in the Chinese Republic and requires from our side help with instruments, equipment, and apparatus, then we will look [that matter] over and decide what to do.

Cde. Qian Xuesen, Chinese delegation:

It would be useful to formulate the article in the following way: in the creation of the above recommended institutes the Soviet Union will render the necessary help.

Cde. DOMRACHEV:

So it will be written. Let's go with your formulation, and we'll look it over in the big commission. We do not object.

Cde. Qian Xuesen, the Chinese delegation:

During the examination of this protocol, we understand that literally what is written in the article turns out to contradict what was said in the discussions.

Cde. DOMRACHEV:

Evidently, the translation was not done accurately. To the extent that it is not our protocol, we agree to formulate it in such a way that it will be more comfortable for us and You. We understand the following—the rendering of aid in the planning and creation of the necessary institutes.

Here under the word necessary it means the future rendering of help in the planning of the recommended institutes, the set up of equipment necessary for the institutes which cannot be produced by your own native industry; the provision of technical documentation; and the sending of Soviet specialists.

Chinese delegation:

You are absolutely correct, to correct the article is not a function of our commission. The main task of our delegation is to explain it.

Cde. DOMRACHEV:

We agree

Cde. Qian Xuesen, Chinese delegation:

I want to use the opportunity in general terms to address problems identified by the Chinese delegation. At the Fourth sub-commission there took place the study of questions relating to the creation of the two institutes: a institute on airplane aero-dynamics and airplane engines; and the second institute—an autonomous system for the guidance of the airplane.

Having looked over the report, our delegation considers that the simultaneous creation of 4 institutes is not possible, due to a lack of the developed industry, the lack of materials, and technical personnel.

The basic task of the Second Five-Year Plan concerns the research and production of a rocket for a guided missile and an unmanned aircraft. Regarding the production research for the airplane, right now we are limited to the preparation of a model of Soviet airplanes. In the past few years we have been devoting more attention to the research and completion of other airplanes.

Regarding the previous discussion, we think there is the opportunity to add still more beyond the creation of the recommended two institutes, which you proposed. It is necessary to add to the tasks of the institute research into the [creation of an] unmanned airplane. We think that such a version is useful, if you take into account the level of development of industry and the engineering-technological forces of China.

Therefore, we would like to propose for these two institutes the task of research into [the production of] a guided missile rocket and an unmanned airplane. The research into the aero-dynamics of a durable corpus and the engine will take place in the first institute, and the research of the systems guidance of a guided airplane as well as the unmanned airplane will take place in the second institute. I would like to hear your opinion.

Cde. DOMRACHEV:

We are not specialists in the area of airplane construction, including for unmanned airplane construction. We cannot say right away which system can be made in China. This is your business.

You have placed the question before us of what is necessary in order to create a rocket in China. We have answered this question. If two institutes are not created, then there will not be any rockets created. We consider it expedient and necessary to create two institutes: for rockets, and for guidance equipment.

If you consider it expedient for these institutes to work on the problems of an unmanned aircraft and airplanes in general, we, as the Ministry of Defense Industry, cannot produce the plans for such institutes, although our work has much in common with these issues, but with more close consideration each of these areas requires great specialization. This much be considered. If the question is formulated like this: develop plans for two scientific organizations, one for materials, and another for a guidance system for airplanes, then we can collaborate with the Ministry of Aviation, which in our opinion is not expedient. Today we talked to Cde. Zhou Lianggui, who

devoted much time to these issues, we sat for a long time and tried to convince him that such a plan is not expedient.

Cde. Qian Xuesen, Chinese delegation:

We are obligated to create two institutes, we don't have the means and money to create other institutes.

Cde. DOMRACHEV:

What else interests you?

Cde. Qian Xuesen, Chinese delegation:

We are interested in the cost of each R-2 and S-75 rocket, the separate cost of the land equipment, including the technical documentation and other things. If it is possible, we are interested in the cost of everything in aggregate, and separately. The price of the rockets in total and the price broken down.

Cde. DOMRACHEV:

We can give you the price of the rockets.

We'll tell you everything in our prices, and then translate it to hard currency. We will give you the price which the Ministry of Defense itself gives.

The S-75 complex costs 13,650,000 rubles, as the rocket itself costs 360,000 rubles. The R-2 without the ground equipment, without any construction -533,000 rubles.

We don't know the cost of the ground equipment, as this is handled by a different organization. If you are interested in this question, we can make a note of it and tell you.

Cde. Qian Xuesen, Chinese delegation:

We are interested.

Cde. DOMRACHEV:

The price of the technical documentation. I am speaking in general figures, as they will be verified. This requires much work. All the technical documentation for the R-2, including the technological part, will be 3 million rubles. This includes the price of the paper and the labor to arrange it and put in order.

The price of the technical documentation for the S-75 will be approximately 3.5 million rubles.

The price of the planning of the institute. If you order plans for an institute for the production of rockets, we believe that the technical plans and the working blueprints will cost 7.5 million rubles.

The blueprints for non-standard equipment will cost 3 million rubles.

If you order plans for the institute for the equipment for systems guidance, the First missile institute. This second will cost 5 million rubles.

The blueprints for non-standard equipment will cost 2 million rubles.

We talked about the price of the institutes at the last session.

Cde. Qian Xuesen, Chinese delegation:

The price which you gave at the last session did not include the cost of planning.

Cde. DOMRACHEV:

Yes, only the construction.

Cde. Qian Xuesen, Chinese delegation:

The price of the technical documentation includes the price of the planning documents and the documents for the ground equipment.

Cde. DOMRACHEV:

The price of the planning documentation includes everything.

Cde. Qian Xuesen, Chinese delegation:

A third question—regarding students in the USSR, discussed in the letter.

Cde. DOMRACHEV:

Our commission does not address this question, which belongs to the Ministry of Higher Education. You want the best specialists to be 50 people moved over to reactor technology. This question will be considered by the Main administration of economic ties. If you require from us some kind of collaboration or help, with pleasure we will render it. This question is taken up by the main administration of economic ties, and we do not anticipate any difficulties.

Cde. Qian Xuesen, Chinese delegation:

The Ministry of Higher Education has with much labor addressed this issue, as they do not know which cadres need to be prepared for which rockets. I request that you think about the question, how to disperse the 50 students among the transferred missiles?

Cde. DOMRACHEV:

We can advise you about this, but the Ministry of Higher Education knows everything about how best to disperse [the students].

Cde. Qian Xuesen, Chinese delegation:

To the extent that I know, your Ministry of Higher Education has concluded agreements with our government, but at this point has that matter been totally resolved? Because the Ministry of Higher Education cannot decide the question of the course of study for these students.

Cde. DOMRACHEV:

Ok, we'll give them advice.

Cde. Qian Xuesen, Chinese delegation:

I request you to think about this question, as their school year semester is beginning.

There is still the question about the necessity of the preparatory work connected with the guided missiles. I request you to appoint your specialists to discuss questions relating to the necessary fuel, including oxidized fuel and the necessary resource materials for the R-2 and the S-75.

We have specialists on resource materials.

Cde. DOMRACHEV:

At the last meeting we identified the basic materials which are required for this or that rocket. We'll go into this in more detail when we pass on the technical documentation. If you add up all the materials which are required for the production of this or that rocket, it requires an entire tome of paper. That's not necessary right now.

Let's proceed in the following way: now the comrades will prepare the more or less deficit materials; there are other materials which are widely used in the countries. We can prepare this and then Your specialists can acquaint themselves with it in the course of work. If it's ok with you, tomorrow we can organize a meeting of Your specialists with ours in the second half of the day.

Cde. Qian Xuesen, Chinese delegation:

We looked into in general terms the question of the raw materials for the preparation of the rockets. We would like further explanations about the question of fuel and any specific peculiarities, such as the type of fuel for the S-75.

Cde. DOMRACHEV:

We suggest tomorrow, at 3:00, Cde. Myshkov will introduce Your specialists with ours. We will invite all our specialists on deficit materials and fuels and we'll look over this.

Cde. Qian Xuesen, Chinese delegation:

We still have an additional request—in order to plan better economic construction in our country, our delegation has sent on a request to the Ministry of Radio Industry for their views. What is the basic equipment necessary for the R-2, including the ground equipment and the ship? And for the S-75?

Cde. DOMRACHEV:

Last time we communicated to you the necessary ship apparatus for the S-75 and discussed the ground [equipment]. What still needs to be verified[?]

Cde. Qian Xuesen, Chinese delegation:

We would like to know precisely what kind of radio apparatus is used for the ship of the guided missile and for the land equipment, in order then to consider the question of the apparatus of production in one factory, and then another, in order to better plan production. For example, in the S-75 rocket there is a radio detonating fuse, and which factory would be the best to produce this?

Cde. DOMRACHEV:

It is necessary to look over the questions that you have, and think about how best to address them. In general we can advise you where to make a radio detonating fuse, and where [to make] guiding machines. If we looked over every element in the blueprints, that would be a terrifying business.

How would you like to put together such a meeting?

Cde. Qian Xuesen, Chinese delegation:

Tomorrow. From our side 3-4 people will be there.

We request you to designate the best time.

Cde. DOMRACHEV:

We suggest Saturday at 10:00. From our side the deputy minister Zverev will attend, and he will invite others.

Cde. ZVEREV:

For tomorrow prepare specific questions.

Cde. Qian Xuesen, Chinese delegation:

Before these discussions we prepared a plan of requests of equipment, necessary for the Fifth scientific research institute. We request you to look over this, with attention to whether or not this list will work for the creation of the two institutes.

Cde. DOMRACHEV:

We can look over this question.

If questions arise, we can get together again and discuss them.

Cde. Qian Xuesen, Chinese delegation:

Right now a portion of the delegation will fly to Beijing and report about the protocol; after their return there will be questions.

After the signing of the agreement the work itself will begin.