CENTRAL ASIAN REVIEW

A quarterly review of current developments in Soviet Central Asia and Kazakhstan.

The area covered in this Review embraces the five S.S.R. of Uzbekistan, Tadzhikistan, Kirgizia, Turkmenistan and Kazakhstan. According to Soviet classification "Central Asia" (Srednyaya Aziya) comprises only the first four of these, Kazakhstan being regarded as a separate area.

Issued by the Central Asian Research Centre in association with St. Antony’s College (Oxford) Soviet Affairs Study Group.

PRICE: SEVEN SHILLINGS & SIXPENCE

Vol. III. No. 1.
1955.
CENTRAL ASIAN REVIEW and other papers issued by the Central Asian Research Centre are under the general editorship of Geoffrey Wheeler, 66 King's Road, London, S.W.3 and David Footman, St. Antony's College, Oxford. CENTRAL ASIAN REVIEW aims at presenting a coherent and objective picture of current developments in the five Soviet Socialist Republics of Uzbekistan, Tadzhikistan, Kirgizia, Turkmenistan and Kazakhstan as these are reflected in Soviet publications.

The subscription rate is Thirty Shillings per year, post free. The price of single copies is Seven Shillings and Sixpence.

Distribution Agents:
Messrs. Luzac & Co. Ltd.,
46, Great Russell Street,
LONDON W.C.1.
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During 1955 certain modifications will be introduced into Central Asian Review in response to criticisms and suggestions from readers.

As already announced in No.4 of Vol.II the system of grouping articles under republics is being abandoned in favour of grouping by subjects. It is hoped that this will result in a more comprehensive treatment of economic and to some extent of cultural developments. The growing part played by Central Asia in all-Union economy is tending to increase central control of Central Asia and Kazakhstan as an integrated regional economic unit. The same tendency is observable to a lesser degree in cultural control and direction. The new system will not, however, preclude the treatment of economic and cultural developments in individual republics where this seems appropriate.

Plans are in progress for the complete revision of the maps issued with the Review. The new maps will include more place-names and physical features, and their scales will be coordinated to facilitate reference.

Finally, a bibliographical note will be added as a permanent feature. This will include brief notices of some of the books and articles on Central Asian subjects appearing in the USSR and is designed to introduce research students to a wider range of material than it is feasible to incorporate in the body of the Review.
In Tsarist times the Transcaspian territory had few industries. There were indeed some cotton-ginning mills in the irrigated districts round Ashkhabad, Merv (Mary), Bairam-Ali and Chardzhou; by-products of cotton in the form of cotton-seed oil and soap were made at Bairam-Ali; the island of Cheleken, off the east shore of the Caspian, produced some crude oil; Ashkhabad and Kizyl-Arvat had railway workshops, and Krasnovodsk and Chardzhou had ship-repairing yards. Wine was made at Ashkhabad and there were some flour mills and brick and lime works. But all these undertakings were small concerns and they supplied markets that were purely local.

With the establishment of the Turkmen SSR in 1924, the industrial picture began gradually to change. The authors of the Five-Year Plans thought in terms of setting up new industries besides expanding those that already existed. Much more cotton was grown so that more ginning mills were needed. Prospectors, geologists and mining engineers discovered resources underground of which little had hitherto been known. New oilfields were found and deposits of coal, sulphur, sodium sulphate, iodine, bromine and ozocerite. New light industries were started, and glass, footwear, silk, wool and cotton fabrics, canned fish, furs and carpets were put on the market. Today, some of the industries of Turkmenistan have an all-Union interest: crude oil, sulphur, sulphates, fish-canning, silk and cotton, karakul skins, and carpets. Others are important for Central Asia only, and to some extent for Western Siberia: glassware, pottery, fur fabrics, conveyor belting, and certain building materials.

A glance at the map of the Turkmen republic shows that it is substantially a vast desert, fringed by a railway system shaped like the letter U. And, naturally, it is along this railway system - with one exception - that the republic has grown industrially.

Turkmenistan's western boundary lies along the Caspian Sea. Of recent years its water level has fallen so low that what was once the Kara-Bogaz-Gol bay has now become a lake. As this lake is almost
entirely surrounded by hot desert country, its waters evaporate rapidly, and to prevent its drying up completely, more water has to be pumped in from the sea. Evaporation leaves behind deposits of sodium sulphate, and these have been exploited. Large quarries are being worked and a sulphate kombinat has been built. Production methods have, however, proved somewhat unsatisfactory, owing largely to the shortage of soft water, and the authorities recently decided to introduce a new technique.

Some fifty miles south of the lake lies Krasnovodsk, a busy rail terminus and seaport. Nearby lie the Nebit-Dag oilfields; these fields, whose output is something like 3½ million tons a year, were described in a recent issue of this Review (Vol.II, No.2). Krasnovodsk also has factories for canning, salting and smoking fish.

Until recently coal was mined in the Yagman field which lies between Krasnovodsk and Nebit-Dag. Mining ceased when the seams were worked out, but some geologists think that there is still enough coal in the field to justify its being reopened. This area also contains supplies of natural gas, and this is being used in Nebit-Dag for both industrial and domestic purposes.

It has already been mentioned that before the Revolution there were railway workshops at Kizyl-Arvat. Since then they have been greatly enlarged and they are now one of the republic's biggest engineering works. Of these works a correspondent of Turkmenskaya Iskra writes that here the long-condemned practice of shock-work (shturmovshchina) has raised its head and the working quotas are not usually achieved until the last ten days of the month. And the works did not fulfil their 1953 programme. At Kizyl-Arvat there are also factories for processing meat and canning fish. At Bezmein cement is made.

A hundred and forty miles down the railway line lies the republic's capital, Ashkhabad (see Vol.I, No.2 of this Review). It is a growing industrial city, and it produces a wide range of manufactures.

A high proportion of the city's labour force is engaged in metal working and engineering. The Krasnyi Molot and Krasnyi Metallist factories make water-tanks, oil barrels, hardware and hollow-ware. An offshoot of the latter factory has recently been laid down and it will have foundries and engineering shops for producing tools, hollow-ware and other metal goods for the general market. Other factories turn out agricultural implements and diesel engines. There are several shops that repair motor vehicles, and at the city's No.1 shop a new diamond boring machine, installed in 1953, has raised the output of cylinders two and a half times.
According to the local press these factories do not always produce their goods quickly enough and their quality is not up to standard. Turkmenskaya Iskra said that by the 20th May 1954 the Krasnyi Molot plant had delivered only 1,565 barrels and 16 tanks out of its annual quota of 5000 barrels and 166 tanks. Still worse, the Krasnyi Metallist plant had not even begun to make tanks at all, though they were needed urgently. "Goods produced by these factories are of very poor quality, but the chief of a department at the Ministry of Local Industries, Comrade Feinberg, instead of organizing the manufacture of barrels for petroleum products, justifies the factories' directors by saying that they lack the necessary machine tools."

Another of Ashkhabad's leading industries is textiles. Cotton, silk and wool are processed here. Workers at the Dzerzhinskii mill, where cotton is both spun and woven, produced in 1952 about 1.4 million metres of fabric more than their allotted quantity - an increase of 41.7 per cent over 1950. In 1953 they did still better and in the first quarter of 1954 they turned out 471,000 metres above their quota, and at 97.6 per cent of the previous cost. This mill has its own housing estate, still under construction. Last year 12 blocks of 10 flats each were ready for occupation; roads were asphalted and some thousand young trees planted along them. Gardens have been laid out and have about 70,000 shrubs growing in the beds.

Silk is reeled at the Eighth of March mill. This mill was started 26 years ago and since then has handled more than 500 million rubles' worth of raw material. Output increased as time went on and it is now 6.2 times what it was in the first year. Quality has improved too. Nevertheless the mill did not reach its 1953 target and, according to the press, it shared with a similar mill at Chardzhou the responsibility for a loss of several hundred thousand rubles.

Wool processing takes the form of wool washing and carding, and the making of knitted wear. Ashkhabad factories are equipped with modern automatic machines for knitting hosiery, but Turkmenskaya Iskra says that the quality is poor. It alleges that the works have no proper dyeing shops and hence resort to makeshifts; fabrics are dyed in a boiler and hung out to dry on a fence in the yard. What is more -"shock work is the usual routine, the organization of work is far from satisfactory, and a general slackness prevails."

One of the city's newest industrial plants is a large footwear factory. It is equipped with up-to-date automatic machinery and went into production early in 1954. It is expected to turn out something like 500,000 pairs of boots and shoes every year. A new mechanized
glass factory was also due to start production in 1954.

Ashkhabad's foodstuffs industry includes a meat-packing factory, some fish-canning plants, distilleries, wine factories and some other food-processing undertakings. There are 121 workshops - for cobblers, tailors, locksmiths, mechanics, and bicycle repairers - most of which lie in the centre of the city.

Some 150 miles north of the capital, in the heart of the Kara-Kum desert, sulphur is mined at Darvaza and Sernyi Zavod (Russian for "sulphur factory"). It is smelted at the latter town, and as there is no railway here, the cakes are transported to the capital by road. The building of houses for the miners at these two places was recently reported.

A little over 200 miles east of Ashkhabad lies the cotton-growing valley of the Murgab river. Here - at Iolatan, Bairam-Ali and the railway junction of Mary - are three of the republic's largest ginning mills. All three were refitted with up-to-date machinery in 1953, including new down separators which have raised output by 18 to 20 per cent. At the Mary and Bairam-Ali mills cotton-seed is now weighed automatically - an innovation that is saving a lot of labour. Mary also has factories for canning fruit and meat, and a new meat-canning plant was due to be opened in 1954 at Sandykachi, south of Iolatan. (Readers of Vol.II No.3 of this Review will recall that Mary lies on the line of the projected Kara-Kum canal, the eastern portion of which is already under construction.)

North-east of Mary, 140 miles away, is the railway junction, river port and industrial town of Chardzhou. It lies on the Amu-Darya river (Oxus) and, as has already been noted, it possessed ship-repairing yards before the Revolution. Today, cotton ginning and engineering are its main industries. Besides its locomotive-repair works, and shops for servicing agricultural machinery and motor vehicles, Chardzhou is to have a large excavator works, which, in spite of being under construction for seven years, were still not completed by April 1954. Nevertheless they were sufficiently advanced to start building the "PZU-Chardzhou l" 300 h.p. diesel suction-dredgers for use on the Kara-Kum canal, in addition to their routine task of servicing diesel engines and repairing excavators for cotton growing. The delay in completing the works has been commented on in the newspapers, which point out that although two official bodies - the Turkmen authority for the mechanization of excavation and the Directorate of Water Supply Construction of the Ministry of Agriculture - are jointly responsible for their construction, neither of them will commit itself to saying
when the works will be completed.

Chardzhou's No. 1 cotton-ginning mill is among the largest in the republic, and, like those at other important ginning centres, has recently been refitted with modern machines, including new diesel engines which have increased output capacity by 50 per cent. But according to Turkmenskaya Iskra, despite the new machinery, things were not going well at the mill. "Frequent accidents and breakages of machinery are reported from No. 1 Chardzhou cotton-ginning mill; these have become a real scourge. During the first six months of 1953, 26 accidents resulting in suspensions of work for 2 to 3 hours each took place, and how many others were there of less than an hour?" The mill's director and chief engineer are said to attribute these accidents to obsolete equipment.

The processing of jute is something new for Turkmenistan, and it is at Chardzhou that a jute mill has been started. Other industrial undertakings in the town include a silk-winding mill, tanneries, cotton-wool and knitted wear mills, and fruit-canning factories. There is also an oxygen factory which supplies both industry and agriculture. Early in 1954 7,000 cubic metres of oxygen were delivered to the MTS of the Chardzhou and Tashauz oblasts.

In the south-eastern corner of the republic sulphur, copper and salt are mined round Gaurdak and Kugitang-Tau. The sulphur is smelted locally. There are some coal deposits at Kugitang-Tau but as it has no railway, their working is on a small scale. This may however change before long as a branch line was started here early in 1954. Meanwhile houses are being built for miners at Gaurdak, besides a dispensary, a kindergarten and a creche.

In the north-eastern part of the republic the biggest town is Tashauz. Situated on the Amu-Darya river, it was to have been the starting point of the projected Main Turkmen Canal, but in the absence of news about this gigantic undertaking, the future development of Tashauz must be considered as uncertain. At present it has two cotton-ginning mills, both of which were reconstructed in 1953, resulting in a 20-25 per cent increase of output. By-products from these mills are made into cotton-seed oil and soap at other factories in the town, but at the oil factory production has been somewhat irregular.

Such is the general picture of the republic's industry today. Statistics of the output of the various industries in 1950 show the following percentage increases over 1945:
Crude oil 220
Sulphur 60
Electric power 68
Raw silk 74
Soap 150
Knitted wear 670
Cotton wool 150
Cotton yarn 130

In 1952, however, although the industrial programme was in the main carried out, there were 20 undertakings that did not produce their quotas. The shortage was estimated at some 155 million rubles.

It seems that industrial progress in general has been much hampered by the backwardness of the building industry. There have been serious shortages of timber, bricks, concrete blocks, tiles and cement, as a result of which the General Directorate of Industrial Building materials completed only 59 per cent of its 1953 programme. It was much the same with the Ministry of Civil Housing Construction, though they did somewhat better at 87 per cent. The trouble appears to be that there are not enough factories producing building materials. According to one reporter-
"A rapid development of the building materials industry is thus necessary here. In addition to the goods it already produces, there is an urgent need for ceramic blocks, tiles, timber substitutes, insulating materials etc. Experience has shown that though between 1946 and 1950 production programmes were fully carried out, today's demand greatly exceeds the supply."

As to the future of the republic's industry, there are some ambitious projects in hand. It is proposed to generate twice the amount of electric power that is being generated today. Power-stations are planned for the oilfield area, for Ashkhabad, Chardzhou and the Mary oblast. This will entail the development of the coalfields at Kugitang-Tau, Tuarkyr and Yagman. The output of bricks is to be trebled. Large footwear and furniture factories, dairies and bakeries are to be built at Ashkhabad and Chardzhou, and a superphosphate factory at Gaurdak. The present production of canned vegetables is to be multiplied by nine in 1955 and the cotton mills and knitted-wear factories are to double their output. The silk-reeling mills are to be supplemented by new plants which will spin and weave silk, and there is to be a similar innovation in the processing of wool. And, finally, there is the Kara-Kum Canal project which can hardly fail to exert a strong influence on the republic's economy.
Sources

1. Z.G. Freikin. Turkmenskaya SSR. Moscow, 1954.

2. Central Asian Press.
SREDAZNEFT: THE CENTRAL ASIAN OIL AUTHORITY


The Sredazneft authority (i.e. Central Asian Oil authority) works fourteen oilfields in Uzbekistan, Kirgizia, and Tadzhikistan through an organization of three subsidiaries - Andizhanneft, Kalininneft, and Termezneft - together with six ancillary bodies - Sredaznefterazvedka (Central Asian Oil Prospecting authority), Sredazburneft (Central Asian Oil Drilling authority), Sredazneftestroi (Central Asian Oil Building authority), Sredazneftezavody (Central Asian Oil Refineries), and two engineering works which construct and recondition equipment.

The Fergana oilfields were first worked in 1904, but before 1935 their total annual production never exceeded 60,000 tons. In the Surkhan-Darya basin oil was discovered in industrial quantities in 1934: the first of these fields - Khaudag - was brought into operation in 1935; the second - Uch-Kzyl - in 1936, and the third - Kokaity - in 1951. Between 1944 and 1947 the discovery of large new resources in the north-eastern part of the Fergana Valley brought a fresh assessment of the potentialities of the Central Asian oilfields. These discoveries made it possible to set the crude oil production target for 1950 at 1,246,000 tons, seven times the 1940 figure, (Uzbekistan 1,106,000 tons, Kirgizia 80,000 tons, Tadzhikistan 60,000 tons). Several geologists, among them O.D. Vigalov and I.P. Zubov, received Stalin prizes for their work in prospecting the new fields.

The development of crude oil production is indicated in the following table, which has been compiled on the basis of pre-war statistics, production targets for 1950, and estimates calculated on a basis of average percentage increases for 1952, 1953 and 1954:
Crude Oil Output in Central Asia

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<tr>
<th>Year</th>
<th>Metric Tons</th>
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<tr>
<td>1905</td>
<td>33,700</td>
</tr>
<tr>
<td>1910</td>
<td>28,500</td>
</tr>
<tr>
<td>1915</td>
<td>30,600</td>
</tr>
<tr>
<td>1920</td>
<td>16,700</td>
</tr>
<tr>
<td>1925</td>
<td>18,900</td>
</tr>
<tr>
<td>1930</td>
<td>39,200</td>
</tr>
<tr>
<td>1934</td>
<td>63,000</td>
</tr>
<tr>
<td>1935</td>
<td>160,000</td>
</tr>
<tr>
<td>1940</td>
<td>185,000</td>
</tr>
<tr>
<td>1945</td>
<td>295,000</td>
</tr>
<tr>
<td>1950</td>
<td>1,206,000</td>
</tr>
<tr>
<td>1952</td>
<td>1,490,000</td>
</tr>
<tr>
<td>1953</td>
<td>1,680,000</td>
</tr>
<tr>
<td>1954</td>
<td>1,875,000</td>
</tr>
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Andizhaneft

Andizhaneft controls seven fields, four in Uzbekistan - at Andizhan, Yuzhnyi Alamyshik, Palvantash, and Khodzhiabad, and three in Kirgizia - at Changyrtash, Maili-Sai, and Isbaskent.

The Andizhan field lies fifteen kilometres to the south of Andizhan town. Geological survey and geophysical investigation led to the discovery of oil indications here in 1937. The first oil was obtained in 1945; the field came into regular production in 1947. It yielded more than the assigned quota in 1953.

Exploratory drilling is still in progress; as the result of work in 1953 many new wells came into operation in 1954. The geological investigations and drilling were carried out so thoroughly that every other well drilled yielded oil. Eighty per cent of the Andizhan wells are bored with turbine drills; this drill, in use for the first time in Central Asia, allows the rock to be removed without the bit being lifted out - an operation usually taking several hours.

Prospecting began at Yuzhnyi Alamyshik - 23 kilometres east of the Andizhan oilfield - as early as 1932, and indications were met with in 1937. Oil was not, however, obtained in industrial quantity until 1945 and operations began in earnest only in 1947. The press describes it as the best field of the whole Sredazneft authority. The 1953 quota was reached before the end of the year.
Several wells are remote-controlled from a single panel. One dispatcher has the task of watching the loading on the engines, and sends a mechanic if the loading falls or rises excessively. Another apparatus, the "dynamograph", which is switched in or out of the circuit automatically, makes it possible to observe the deep oil pumps. Remote control has made it possible to reduce the staff of thirty-three operators to thirteen in one sector of this field. The "Molchanov" apparatus automatically sinks and lifts pipes in wells in this field, whereas before the coupling and uncoupling had to be done by hand. Time, labour, and output costs have all been saved by this and similar devices. From 1946 hydrochloric acid has been pumped into the wells to dissolve rock: 49 wells were treated with 471 tons of acid in 1950.

Exploration at Palvantash - eleven kilometres south of Leninsk - began in 1943. Test-drilling found oil in 1945 and production started in 1946. Natural gas deposits were also discovered; a pipe-line now supplies industrial and municipal organizations with fuel. Palvantash is the largest Uzbek field. It achieved 128 per cent of its quota in 1951, 105 per cent in 1952, and in 1953 it reached the target before the end of the year. Test-drilling is still being carried out.

The Khodzhiabad field - twenty-two kilometres east of Andizhan - started operations in 1951, and is still expanding. From 1953 the field has been subjected to both water flooding and pressure maintenance by gas injection. All wells are operated by schedule; some, only periodically tapped, now yield as much oil in eight days as they did in twenty-four. The hydrochloric acid process is used.

The Changyrtash fields lie eighteen kilometres south-west of Dzhalal-Abad, between the Karaunkur and Kugart rivers - tributaries of the Kara-Darya. Oil was discovered in 1927 and the fields were first exploited ten years later, but yielded only some few ten thousand tons of oil. During the war production slowed down, and for two or three years after the war the decline continued. Almost a quarter of the wells had to be abandoned because of missing equipment, and crude oil output decreased by 18.9 per cent from 1946 to 1948. From 1948, however, the yield rose, doubling the 1940 figure in 1951. The 1951 figure was 3.8 times the 1948 figure but fell short of the quota; this was none the less achieved before time in 1952 and 1953. Labour productivity has increased 10 per cent and costs have been lowered 5 per cent per crude ton. Specially designed boring-rods, pumps and compressors are supplied to the field, and lighter, small-diameter pumping-jacks have made it possible to install smaller engines and have led to a saving in power. This is supplied by a diesel electric power-station. Application of hydrochloric acid to the hard limestone strata overlying
the oil zones has been made here, but has not invariably been successful.

The same method applied in 1952 at Mailli-Sai and Isbaskent - 57 and 26 kilometres north of Andizhan respectively - brought an increase of 47 tons of oil per ton of acid used. These fields were prospected after the war; oil was found at Mailli-Sai in 1946 and worked from 1948; at Isbaskent it was found in 1949 and first exploited in 1951.

Kalininneft

Kalininneft controls four old-established fields in the southern Fergana Valley: Chimion and Shor-Su in Uzbekistan, and Kim and Nefteabad in Tadzhikistan. Chimion lies some twenty kilometres south of Margelan. It is the oldest field worked by the Sredazneft, being first exploited in 1904. It still gives a small output of crude oil. Shor-Su twenty-two kilometres south-west of Kokand - was put into operation in the early thirties. It is being gradually exhausted.

Kim (formerly Sel-Rokho) lies eighteen kilometres south-east of Melnikovo station and seventy-two kilometres east of Leninabad. It was re-equipped after the war and exceeded its 1953 quota; costs were lowered 4.5 per cent on each ton of oil. The "Molchanov" apparatus (v. supra) is in use, and secondary recovery has raised the yield of fourteen old wells into which air is pumped by compressors.

Nefteabad - eighty-one kilometres east of Leninabad - lies in an area of long-known oil seepages. It was exploited before the war, but only yielded 7,000 crude tons in 1937. Since 1950 the field has been mechanized. Metal derricks have replaced wooden ones and a single control panel operated twenty automatic electric pumping-jacks. Air pumping and other secondary recovery methods are used. The quotas for 1953 and 1954 were overfulfilled; the town has prospered since the war and now has cinemas, schools, a sports club, a creche, and a small library. The two Tadzhik fields produced 25,000 tons of crude oil in 1947, 60,000 in 1950 and are continuing the increase.

Termezneft

Termezneft controls the three Surkhan-Darya oilfields, all in Uzbekistan. Khaudag, fifteen kilometres north of Termez, started production in 1935 but has declined through a drop in pressure. Secondary recovery methods are being applied. Uch-Kzyl, eight kilometres north of Termez, was started in 1936, but failed to justify the hopes placed in it. It is now exploited jointly with Khaudag. First
inductions of oil at Kokaity - six kilometres east of Khaudag - were encountered in 1943. It was brought into production in 1951. The area has resources of natural gas, whose exploitation is under consideration.

The Termezneft oil has a high paraffin content, which makes refining and the obtaining of high-grade gasoline and kerosine from it difficult. In 1950 the whole output was still being burnt as a fuel without being refined, though in the first six months of 1954 the press spoke of an "extra" train-load of oil being sent to the railway at Melnikovo.

Refining

Some Sredazneft oil is refined at Vannovskii, thirty-four kilometres east of Kokand. The refinery was to be enlarged and reconstructed in the post-war Five-Year Plans. The director, T.P. Sergin, reported a saving of several million rubles in 1953; the yield of petroleum products rose by 7 per cent on the previous year, and costs fell by 4.5 per cent.

There are also refineries at Kim, Melnikovo, Kanibadam, Leninsk, and Andizhan. The Kim refinery, built in 1914, has just been rebuilt. Hassman (v. sources) states that the largest Central Asian refineries are at Fergana, with an annual first distilling capacity of 2m. tons and a cracking capacity of 500,000 tons.

The discovery of the north-eastern Fergana fields (i.e. the Andizhanneft fields) between 1943 and 1946 brought the announcement of a new "Greater Fergana project." Deeper test-drilling and wider explorations were said to be about to turn the area into a major field of oil production. It is difficult to judge how far the project has been realized, but it is admitted that some fields have proved failures while the most productive are progressing only moderately. No new fields have been brought into production in the last three years.

Notes

(1) Output plan for 1950
(2) 24 per cent increase on the 1950 figure quoted in Pravda Vostoka of 7.11.52
(3) Estimated figures
Sources


CENTRAL ASIAN FISHERIES

Guryev and the northern Caspian - The southern Caspian - The Aral Sea
The lakes - Development of inland fisheries - Conclusion.

All the Central Asian republics are said to contain expanses of water in which are fish in marketable quantities, but only in Kazakhstan and Turkmenistan does fishing form an important part of the national economy.

Guryev and the northern Caspian

Kazakhstan, indeed, provides nine per cent of all the fish caught in the USSR. Of this, forty-two per cent is caught in the Caspian, whose northern and more shallow waters yield thirty-two kilogrammes of fish per hectare; the Arctic Sea - the most fertile of the coastal waters - yields only seventeen kilogrammes per hectare. The principal marketable fish in the northern Caspian are sprat, bream, roach, sazan, zander, herring and sturgeon. The waters are ice-bound in winter, when seal are driven over the ice from specially equipped vessels; in summer they are driven into stationary sturgeon nets.

Guryev is the chief fishing centre. Before the Revolution fishing was mainly in the river and delta of the Ural river. In the Soviet period a Machine Fishery Station (MRS) was established and fishing spread to the sea, and in winter to the southern Caspian. A large processing and canning factory (described below) has been built, and various ichthyological institutes and a fisheries tekhnikum have been founded in the town. The average annual catch of the fisheries in the 1946-1950 Five-Year-Plan was one million centners.

The Kaganovich fish-canning kombinat is one of the largest undertakings of the food industry of the USSR, and has a separate article in the Soviet Encyclopaedia, of which the following is an abridged translation. The kombinat was started in 1930-31 and began work in 1933. It consists of six enterprises: a canning factory, a processing factory, a refrigeration plant, a by-products factory, a cooperage and a box works, and a steam-power plant. Fish is frozen, chilled, smoked, salted, dried and tinned. Red and black caviar, technical fats and fish-meal are
produced.

In the kombinat's vessels and in its shore and river fisheries, trawling, and the casting and hauling in of the seines is done mechanically. Electric cranes unload the fish and conveyor-belts and trolleys take it to be processed. Washing and tinning is similarly done by machinery. A production-line system brings live fish to be weighed and to be boxed in the refrigeration shop. Crushed ice is mixed with the fish by conveyor belting, and together they are packed into refrigerator vans.

The introduction of mechanization has taken place since the war and has trebled the output of tinned fish. In 1946 fresh frozen fish formed only 12.2 per cent of the total output; in 1950 it formed 42.7 per cent. The annual output of the canning factory is sixty million tins of fish.

In the immediate area of Guryev there are twenty fishing kolkhozes; there is a fish-processing factory at Chertombai with off-loading points at Mokrinsk, Kruglinsk and Novinsk.

The southern Caspian

The southern Caspian is less fertile than the northern waters - it yields 18 per cent of the total catch - but does not freeze in winter. Marketable fish caught are mainly sprat, pike-perch (zander), sturgeon, herring, roach and sazan. Sprats are the most important catch; a technique of using electric light to attract them to the nets has recently been developed by a Stalin prize-winner - Professor Borisov - and has brought some success.

The Turkmenryba authority works kombinats at Krasnovodsk and Kizyl-Su and factories at Gasan-Kuli and on Ogurchinskii island. A new kombinat is to be built in Ashkhabad for processed fish. The Turkmenryba ships, and those of the Union of Turkmen Fishing Kolkhozes (Turkmenrybak-kolkhozsoyuz) are serviced by an MRS at Krasnovodsk. Particularly during the summer sprat-fishing season, these establishments cannot meet the strain when the fleet moves to the larger catches of the northern waters. Both in 1952 and 1954 the turn-round of the depot ships was too slow to meet the needs of the trawlers. In summer, the catch is not only larger, but must be immediately salted and boxed to prevent decay. This was sometimes impossible, as the depot ships were not at hand with supplies of salt, wood and nails. Trawlers under repair at the MRS were released before they were ready; one ship was detained for a month; others were not
fitted out with the equipment necessary for fishing by electric light according to Borisov's technique.

Fishermen at sea - sometimes for five or six months - are not deprived of welfare services. A special ship - the Nineteenth Party Congress - carries out this work and organizes political education courses. The diesel "floating base" Mikoyan also carries "cultural" workers on board.

The Aral Sea

Fishing in the Aral Sea is mainly for bream (29 per cent of the average catch), sazan (28 per cent), roach (16 per cent), carp, perch, sheet-fish, ling and acipenser nudiventris - a type of sturgeon. The Aral Fishing Trust (of Uzbekistan) was taken to task by an article in Pravda Vostoka of 9.6.53 for neglecting other species - alburnus chalcoides, peleucus cultratus, and aspius aspius, of which large unutilized reserves are said to exist. The chief breeding-grounds are the Amu-Darya and Syr-Darya deltas. Only ten per cent of the fish is caught here; and the remaining ninety per cent is caught in the sea off the deltas. The fishermen are blamed for their lack of initiative in seeking new grounds; this tendency is encouraged by the predictability of the fish movements, which are much more reliable than in the Caspian.

There are nineteen kolkhozes in the northern Aral - the Kazakh waters - served by MRS in Aralsk and Kuvan-Darya, an ichthyological institute and the Aral hatchery. The ichthyological institute had not in June 1953 produced a plan for applying Borisov's technique in the Aral, and mechanization is generally retarded - only 8-9 per cent of the catch is made with modern equipment; nets are cast by hand and hauled in on windlasses.

In Aralsk, the only point where the railway touches the sea, there are a canning factory, eleven fish-salting works and two refrigeration plants.

The Uzbek waters yield 60 per cent of the average annual catch of 350 centners. There are ten fishing kolkhozes served by the Muinak MRS. There is a canning kombinat at Kazakdarya and processing factories at Muinak, Ushsai and Ugin. New trawlers and tackle were brought here this year from the Sea of Azov and from Aralsk.

The Aral catch is particularly important for the supply of the settlers in the new grain lands. In the month of September 1954 ten tons of the best fish were sent to the Kustanai oblast alone.
The lakes: Balkhash, Alakol, Zaisan, Issyk-Kul

The western waters of Lake Balkhash are shallower and less salt than the eastern; fishing is mostly confined to these regions, especially those of Bertys and Burubaital (or Burlyu-Baital). 70 per cent of the catch is *sazan* - a quarter of the all-Union catch - 22 per cent pike, and the remaining 8 per cent *marinka* (*schizothorax*). There are canning *kombinats* at Balkhash and Myn-Aral, where railways touch the lake, a processing factory at Algazy, and an MRS at Myn-Aral. These are operated by the Balkhash trust. All the fleet is now motorized and equipped with kapron (i.e. nylon) nets. Special motor-boats cast and take up the trawls.

The catch in Balkhash could be increased by new stocking of the waters. This is also true of Lakes Zaisan, Alakol and other small stretches of water. In Zaisan, sturgeon, white salmon, ide, *taimen* and pike (40 per cent of total catch) are caught. Attempts are being made to introduce *ondatra* and *sazan*, and the last few years have seen a great increase in fishing. The lake had only four boats in 1952, but twenty ships and ten motor-boats started the season in April 1954. There are 18 fishing *artels* on the river Irtysh near the lake served by a factory at Pavlodar, which is in process of reconstruction. The curing house has already been built; the salting and refrigeration works are to be completed soon.

Five species are fished in Lake Issyk-Kul; *osman*, *sazan*, *marinka*, *chebak*, small herring - and recently, trout. There are nine fishing kolkhozes on the lake and a fish-processing *kombinat*.

The development of inland fisheries

From time to time the development of fish-ponds is urged in the Central Asian press, but little interest appears to be aroused. In Turkmenistan fishing is possible in the Murgab and Amu-Darya basins, and in lakes in the Tashauz oblast. Seven organizations are responsible for fishing them, but in 1953 some made only 26 per cent of the planned catch, the rest even less. Kolkhozes in Tadzhikistan are encouraged to construct ponds and stock them with trout and carp from the Stalinabad hatchery. An article in *Kommunist Tadzhikistana* advises farmers that ducks raise the fish productivity of a pond by thirty or forty per cent. But, the article continues, fish-ponds are not taken seriously in Tadzhikistan; some kolkhozes have not laid out ponds, others overstock their ponds, others never clean them. Fisheries, the article concludes, must be a real part of the economy of the country.
Kirgizia has a hatchery, built in 1953, in the Chu Valley. Its director in a letter to Sovetskaya Kirgiziya in November 1954 announces that in spring 1955 the hatchery will begin to restock Lake Issyk-Kul with sazan and carp and to supply kolkhozes with mirror carp and trout. He asks for derelict land to be given to the hatchery to make into industrial fisheries. Similar projects are under way in Uzbekistan. A large reservoir at Uch-Kzyl is to be stocked with over four million mirror carp, sazan and barbel.

The Aral is being stocked with fish from the Caspian and elsewhere in the Union. In spring 1954 sprats (salaka) were brought from Estonia. From November onwards for three or four years grey mullet is to be brought from the Caspian in thermostatic cars to acclimatize the fish on the journey to the lower Aral temperatures. Aral bream are to be similarly transported to Lake Issyk-Kul, where trout were brought from Lake Savan in 1936 to replenish reserves. The fish are to be released in the deeper, at present, unfished waters.

... 

The unwillingness of fishermen to fish in unfamiliar areas is a general source of criticism. To find new grounds an expedition of 350 ships from the Volga-Caspian Trust and from Astrakhan, Dagestan and Turkmenistan kolkhozes is to fish the southern Caspian from November 1954 to April 1955, using the latest technique - nylon (kapron) nets for grey mullet and Borisov's electric light technique for sprat. This latter requires special lamp-sockets and protective mesh: in 1953 the Turkmen MRS did not supply the mesh, and more bulbs were broken than there were reserves.

Large-scale organization is an advantage in these greater undertakings. But it is evidently impossible in such an industry as fishing to standardize methods or results, or to make the organization entirely comprehensive. Individual fishermen are conscripted into the ranks of a fishing kolkhoz or "brigade" and are set a quota which they must give to the Government, but the knowledge that they can if they wish obtain an immediate sale for their fish has its effect. Issyk-Kul fishermen have been known to make up the State quota with small fish, and to sell the larger and more desirable fish in the bazaar; the quota is set by weight. The unpredictability of the size of a catch does not facilitate the "fulfilling of norms." It is hard to attract fishermen to conformity by describing high wages - 9,590 rubles and 5,590 rubles for three months are examples on Lake Issyk-Kul - when they know that hard work will not necessarily bring them success.
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RAILWAYS AND WATERWAYS IN KIRGIZIA


The total length of railway line in Kirgizia is less than a quarter the total length of hard-surfaced roads. Nevertheless the railways, serving the economically most important areas play an important part in the economy of the republic. Thus although railways penetrate only the fringe of Kirgiz territory, the Fergana Valley, an important cotton-growing and mining area, and the Issyk-Kul basin and Chu Valley - the main agricultural region of Kirgizia - are connected respectively to the Fergana Valley railway loop of Uzbekistan, and to the Turksib line. For the rest of the republic roads are the basic means of communication (see CAR Vol.II, No.4), and the steamer service on Lake Issyk-Kul is an important link between the towns of the Issyk-Kul basin and the port of Rybachye, the head of the Pishpek section of the Turksib.

I Railway

The Fergana Valley area

The two tongues of Kirgiz territory which encircle the Fergana Valley are an important agricultural and mining area. As direct communication between this region, and northern Kirgizia and the capital is difficult either by rail or road owing to the mountainous country, the Kirgiz towns of the Fergana Valley are connected by spurs to the Uzbek and Tadzhik railway system.

The mining town of Sulyukta can thus only be reached by rail from Dragomirovo station in Tadzhikistan by a forty-kilometre narrow-gauge line. The transport workers of Sulyukta station are reported in August 1954 to have overfulfilled the seven-month plan and to have made considerable economies. Kyzyl-Kiya, another important coal-mining town, is connected by a forty-eight kilometre spur to Skobelevo, a junction in Uzbekistan; as far as Kyzyl-Kiya station this line is broad gauge but the remaining three kilometres to the mines are narrow gauge. Through the
combined efforts of the miners and the railwaymen good results have been achieved Kyzyl-Kiya. Loading and unloading operations have been speeded up and intensive loading is widely practised.

An important branch line in this area is that running from Osh through Karasu junction over a tongue of Uzbek territory to Dzhalal-Abad and on to Kok-Yangak. From Karasu a line runs into Uzbekistan and joins the Fergana Valley railway loop. The despatch of heavier trains over the difficult stretch of line to Osh has become a regular practice. In August 1954 Sovetskaya Kirgiziya reported that the loading and unloading plan for this station had been raised, and the time taken for these operations has been considerably shortened. Signal boxes have been built, and a goods yard has been planned. It was claimed that there was not a single month in 1953 when the railwaymen of Kok-Yangak did not overfulfill their monthly targets. This achievement was said to be partly due to the cooperation obtained by the railwaymen from the transport department of the mines. In spite of the increased coal output from the Kok-Yangak mines there were no delays in the despatch of coal.

Dzhalal-Abad, one of the largest stations in southern Kirgizia, overfulfilled its loading plan for 1952; during that year 1,972 trains with loads over and above the norm were moved to and from Dzhalal-Abad. In April 1954 there were reports of keen "socialist competition" among the engine drivers of this station, all of whom had by then driven trains with loads twenty per cent above the norm. The station has been redecorated and many trees have been planted on the wasteland near the station. The station platforms have been asphalted and amenities established for the comfort of the engine crews and guards. At the same time, however, it is reported that though considerable quantities of freight arrive at this station there are no facilities for its storage. The goods yard is said to be in a filthy condition and often lorries cannot get near it as the approach to the yard is like a swamp. The manager of the goods yard, instead of making improvements, fines the lorry drivers for the delay in clearing the freight from the yard.

The Pishpek section of the Turksib

Pishpek - the pre-revolutionary name of Frunze has given its name to that section of the Turksib which leaves the main Turksib line at Lugovoi junction in Kazakhstan and runs through Kalininskoye and Karabalty to Frunze; eastwards from Frunze the line runs along the Chu Valley through Tokmak and Bystrovka and then by way of the Boam gorge to Rybachye. It thus not only passes through the important Chu Valley but also serves as an outlet for the Issyk-Kul basin.
In the past the working of this line has been sharply criticized in the press; in the years following the war it appears to have been unable to cope with the extra freight arising from the rapid post-war expansion in the Kirgiz economy. There were said to be numerous cases of infringement of labour and "State" discipline. The wagon-repair workshops were behind in their output, and those wagons and flats that had been repaired frequently had to be returned for further repairs. From 1950 to 1952 the targets for the average daily run of locomotives were far from being fulfilled; and through trains to Lugovoi were often held up at intermediate stations.

In 1952 the wagon-repair workshops at the Pishpek depot at Frunze were criticized for working in a most inefficient way; there was no proper technical supervision and no one person was responsible for the repairs. Engines under steam were kept waiting longer than the prescribed time which meant that engine crews would receive pay for doing nothing and that the engines wasted fuel. The chief traffic engineer appeared to be more interested in overfulfilling targets for the average daily run of his engines than in transporting freight, and as a result they would at times be despatched without hauling a single ton of freight. Meanwhile railway staff were paid overtime for doing nothing. Conditions at Pishpek station yard were said to be intolerable: the yard surface was deeply rutted and badly paved. The approaches to the yard were also in a deplorable condition and there was said to be hardly a day when trucks did not break down while trying to get through to the yard. The same conditions prevailed at any railway crossings.

Conditions, however, seem to have somewhat improved in 1953 and 1954. In the first half of 1953 Pishpek depot overfulfilled its plan for repairs to wagons and was ahead of other depots of the Turksib. Trains with an increase of 200 tons in load were run to Lugovoi as a matter of course. It appears, however, that during 1953 trains were frequently despatched not loaded to their fullest capacity. The chief engineer who was held responsible asserted that during the third and fourth quarters of 1953 there had been insufficient freight. This, however, was considered no excuse as the targets for hauling heavy trains had also not been carried out in the first two quarters of the year when there was an abundance of freight. Indeed, it was admitted in June 1954 that, in contradiction to other reports, during the course of the last few years train loads had not increased but had remained at the same figure.

In spite of all these shortcomings delegates attending a conference of trade-union members of the Pishpek section at the beginning of 1954 claimed that the previous year's targets for loading and unloading had been fulfilled and that the targets for repairs to locomotives, wagons,
and to the track had also been carried out. Over four thousand workers on the section were considered to be "leaders of production". During the year the engine-drivers of Pishpek station had hauled 313 heavy and 1,894 classified trains which made possible the despatch of hundreds of thousands of tons of freight above the norm.

Rybachye is frequently mentioned in the press. Trains exceeding the norm in weight have been successfully run over the mountainous Bystrovka - Rybachye section. At Rybachye station, however, conditions are not good: the goods yard is crammed with freight because consignees in the Issyk-Kul and Tien-Shan oblasts often delay taking delivery.

Cases of corruption on the Pishpek section are sometimes reported. The station master at Frunze, for instance, ordered his cashiers to charge four rubles in excess of the regular fare on every ticket sold, whereas this surcharge should in fact only be paid when the ticket is sold in advance. All this was going on undetected while during the first two months of 1954 only six per cent of the funds allocated for the construction of living quarters was used.

In June 1954, however, it was reported that the general standard of efficiency and productivity had been raised on the Pishpek section of the Turksib. The freight haulage plan was carried out on time. Drivers of the Pishpek depot decided to raise the average daily run of locomotives by 164 kilometres, to raise the average speed by 4.2 kilometres per hour, and to cut the turnaround time of locomotives by 6.86 hours. The fulfilment of these targets would release two locomotives for work on other sections and effect an economy of over a million rubles per annum.

II Waterways on Lake Issyk-Kul

The first organized shipping service on Lake Issyk-Kul was started in 1926 to transport grain and oil and to tow timber rafts. On 16th July 1953 the steamship service was brought under the control of the Central Asian River Steamship authority whose headquarters are at Chardzhou in Turkmenistan. Since this date there appears to have been a marked improvement in its work and organization.

Between 1946 and 1950 the amount of cargo transhipped rose only by three and a half per cent. Early in 1953 an article in Sovetskaya Kirgiziya complained of the inefficiency of the steamer service and of its lack of coordination with the unloading depots. In the previous year valuable agricultural machinery often lay as much as two months at
Rybachye pier. Frequently the management of this pier refused to accept freight. Ships were often delayed: the new motor-vessel *Przhevalskii* was once kept waiting eight days and the No.1 barge twenty days. The mechanization of loading and unloading processes was proceeding too slowly. The *Przhevalskii* after leaving repair dock still needed her stern reconstructed and her compass adjusted. In April 1953 it was stated that although the port workers of the Issyk-Kul basin had fulfilled their loading plan by 109.6 per cent and had thus made a profit of over one and a half millions above the plan, the steamship workers had failed to carry out the plan for the shipment of freight. This failure was put down to poor discipline, "formalism" in "socialist competitions", and lack of initiative on the part of some of the trade-union organizations. In May, however, it was reported that the sailors of Lake Issyk-Kul were working to fulfil their yearly plan by 20th December.

After the reorganization of the shipping service in July 1953 great progress appears to have been made. An article by the head of the Issyk-Kul branch of the Central Asian River Steamship authority published in *Sovetskaya Kirgiziya* on 20th October 1953 gave details of the improvements that had taken place. The plan for yearly profits had been achieved by 139 per cent already in August; this was made possible by the lowering of transport costs due among other things to an economy of 21 per cent or 314 tons in fuel. The port workers at Rybachye overfulfilled the plan for the handling of freight by 6.8 per cent; this result was achieved by the better organization of work and by the introduction of mechanization; manual labour was reduced to a minimum. All this meant that the time ships were held in port while being loaded or unloaded was reduced by 50 per cent. Another innovation was that ships were overhauled while they were standing in port, thus obviating the withdrawal of ships from service for repairs which could have been dealt with before they became serious. The motor-vessel *Sovetskaya Kirgiziya*, the tanker *Manas*, and the steamer *Komsomol* all over fulfilled their monthly targets and were working at increased speed. The best ship on Issyk-Kul was the *Przhevalskii*, whose captain, a Party member, was running his ship to an hourly timetable and carried out all running repairs without putting his ship out of service; this enabled him to overfulfil the monthly plan for the shipment of freight by 40 per cent. Although in general there was a far more efficient and more economical service, some ports were not doing so well; at Przhevalsk pier costs of loading and unloading freight had risen, and the ship-repair yards had spent too much on wages.

In March 1954 there were still complaints about conditions at Przhevalsk pier and at other ports. All loading and unloading work at Przhevalsk was reported to be still done by hand. At other ports ships were frequently delayed because consignees refused to take delivery of their
freight. But apart from these instances improvement appears to be general. The plan for the transport of freight in tons was exceeded by 3.6 per cent, and the amount of freight transported in tons rose by 11.2 compared to the previous year, and the cost of transport fell by 23.9 per cent. The April plan was fulfilled in good time, and the motor-vessel Komsomol achieved its target to the extent of 120 per cent. By the end of July, it was reported in Sovetskaya Kirgiziya, the plan for the transport of freight had been achieved to the extent of 100.5 per cent; six per cent more oil-products, than stipulated in the plan had been shipped, but the plan for timber was only fulfilled to the extent of 85 per cent.

In spite of the improved service and lowered costs, the complaint has been made that insufficient use is made of the Issyk-Kul steamers, clients preferring the more expensive road transport. Thus beer is sent by road from Przhevalsk to Rybachye, and cattle are driven upwards of 200 kilometres round the lake which seriously affects their meat value. This is in spite of the fact that Zagotskot (i.e. the cattle supply authority) has been negotiating with the shipping service for two years and has eventually been supplied with a barge for shipping cattle, which, however, is not used.

It is thought that the Kirgiz Gosplan, and the Issyk-Kul oblplan should consider the question of the integration of industry, agriculture and water transport in the Issyk-Kul basin, and that port officials should make a thorough study of the economy of the adjacent districts and make it clear what freight could and should be sent by water. Better use must be made of loading and unloading machinery and ships must spend less time in ports. Although the amount of freight sent by water has risen one and a half times since 1940, it is thought that great possibilities for further development exist. In particular when the Dzhergalan and Sogutinsk coal-fields - lying respectively east and south of Lake Issyk-Kul - start to be worked the shipping services will be called upon to play an even more important role in the economy of the republic.

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SILK: A TRADITIONAL INDUSTRY

History - Modern sericultural methods and research - Output of raw silk - Silk-processing industry.

Silk has long been associated with Central Asia. Silk cultivation appears to have been introduced into the area from Kashmir or China before the beginning of the Christian era, and in the Middle Ages one of the most famous of all trade routes - the Silk Road - passed through the oases of Central Asia. On account of the climate and the abundance of mulberry trees Central Asia is ideally suited to sericulture. Before the Revolution, the best silk goods were considered to be those of Bukhara, Kokand and Khodzhent, and silk culture was the chief occupation of many villages of the Zeravshan, Khodzhent and Kurama districts. Indeed the silk industry was one of the most developed in the whole of Central Asia. It was nevertheless an almost exclusively domestic industry, the task of rearing the silkworms being carried out by the women of the household. In Russian Turkestan, however, several attempts were made to establish silk mills, but of the seven important filatures established between 1867 and 1872 all were soon closed through lack of funds. An important step was taken in 1871 when the Imperial Government set up a school of silk culture with a laboratory to study the various breeds of silkworm and their diseases.

Before the Revolution, Russia ranked fourth among the world's major producers of silk, the Caucasus and Central Asia being the most important areas. The First World War dealt a severe blow to the industry but with the coming of the Soviet regime a fresh impetus was given to the industry by the establishment of Government-sponsored breeding establishments and the extension of the area under mulberry trees. Today sericulture is developed in eleven republics of the Soviet Union. The main centres for the production of raw silk are Georgia and Azerbaidzhan in European Russia and Tadzhikistan and Uzbekistan in Soviet Central Asia.

The manufacture of silk fabrics is as a rule confined to the areas where sericulture is practised, though important silk-processing plants exist in the Moscow oblast, in Leningrad and elsewhere. In Central Asia silk fabrics are produced primarily in Tadzhikistan and Uzbekistan and to
a lesser extent in Kirgizia and Turkmenistan. Over the past ten years
the industry has been considerably enlarged and re-equipped; the
number of weaving frames has more than doubled and the number of
automatic looms increased sixteen times. Other machines now in use are
fast-working reeling and warping machines and precision spoolers. The
silk workers are said to have fully mastered modern methods of scouring
the fabrics. The silk mills now produce a variety of new high-quality
fabrics: heavy-weight crepe and satin, plush and velvet, and a new
weave called eponzh kletka - a mixture of silk and wool. The
production index, it is claimed, has never before stood so high and is
continually rising.

Modern sericultural methods and research

Sericulture is now run on scientific lines; and new methods
evolved by the various sericultural research institutes and by the
leading workers are frequently publicized in the press. One method
which receives considerable prominence is the fast feeding of the
silkworms. The essentials of this method are the maintenance of specific
temperatures during the various stages of growth, regulation of the
degree of humidity, frequent feeding on fresh mulberry leaves, and the
cleaning of trays after moults. In the past the silkworms, especially
in the early stages of growth, were kept at temperatures of 34.5 to 35
degrees centigrade. To speed up the process of growth this has now been
reduced and a temperature of between 28 and 32 degrees is maintained
during the periods of first and second growth, 25 to 26 degrees in the
third and fourth, 22 to 24 degrees in the fifth stage, and, during the
cocoon-spinning stage, about 23 degrees. These temperatures are said to
accelerate the growth of the larvae. The degree of humidity is also
carefully regulated; the normal humidity during the first and second
stages of growth is 45 to 55 per cent, in the third 50 to 60 per cent, in
the fourth 50 to 65 per cent, and in the fifth and during cocoon-spinning
65 to 75 per cent. In order to speed up the elimination of the
accumulated waters from the body of the silkworm, the building is aired
five or six times in twenty-four hours, and in hot weather eight or nine
times. The frequency of feeding is regulated at sixteen times a day in
the first and second stages of growth, fourteen times in the third,
twelve times in the fourth, and seven to eight times in the final stages
of growth. Throughout all stages of growth the light is kept diffused.
The advantages of this method lie not only in the greater yield of
cocoons but also in a saving of the workers' time which thus frees them
for other work in the fields.

Research into sericulture is being vigorously pursued, particularly
in Uzbekistan. The Samarkand sericultural station in association with
the silk kolkhozes of the republic has worked out a series of technical methods which are said to make the practice of sericulture even more scientific. During the winter of 1953-54 the station organized two-week courses and in the early spring ten-day seminars in labour organization for "brigade" leaders were held. The Tashkent Institute for Research into Sericulture has reared six new species of silkworm, one of which, the Soviet variety, is said to spin seventeen per cent more yarn than the Baghdad variety previously reared in Uzbekistan.

Output of raw silk

In all four Central Asian republics sericulture is an old-established and important branch of agriculture, and especially so in Tadzhikistan and Uzbekistan. In Tadzhikistan, it is widely practised and its further extension is constantly encouraged as a means of raising the prosperity of the kolkhozes of the republic. Attempts are being made to develop sericulture in the kolkhozes of the mountain raions where, according to one report, "until collectivization it was quite unknown." Results, however, are varied. In the kolkhozes of the Regar raion where all the new methods were strictly observed, the average harvest of cocoons for each tray of silkworm eggs in 1953 was 86 kg. and in some cases 94 kg. or even 100 kg. In 1954 the kolkhozes of the Leninabad raion reached their yearly target for the output of cocoons by the 25th August; the average yield per tray was 52.6 kg. but in some kolkhozes, such as the Malenkov, 123 kg. per tray was not uncommon. On the other hand according to a press report of 15th June 1954, the harvest of cocoons in the Leninabad oblast - one of the republic's principal sericultural centres - was ten per cent less than in 1953 and the six-month plan had not been half fulfilled. This failure to reach targets was put down to the infrequent feeding of the silkworms: instead of the required seven to eight feedings only two or three were carried out daily. It was pointed out that this was due to the scarcity of mulberry leaves, and in fact in the republic as a whole the shortage of mulberry plantations is, if not acute, at any rate pronounced. The existing plantations, it seems, are poorly irrigated, frequently damaged by cattle and further reduced by unauthorized felling. Of late there have been reports of the planting of various sorts of mulberry on the stony mountain slopes especially in the western Pamirs, but considerably more will have to be planted if sericulture in Tadzhikistan is to be developed to the full.

Although it produces a quarter of the total output of silk in Central Asia, there are few press reports on the silk industry of Turkmenistan. Sericulture is concentrated in the Ashkhabad and Chardzhou oblasts and since 1950 production has on the whole been satisfactory; in 1953 the State plan for raw silk was fulfilled by 100.6 per cent. In
Uzbekistan too output has been steadily increasing: gross output of raw silk is said to have gone up $\frac{3}{2}$ times since 1940 when 12,055m. cocoons were produced. Today Uzbekistan provides sixty per cent of all the raw silk produced in the USSR.

According to press reports published in August 1954 the kolkhozes of the Namangan oblast of Uzbekistan had fulfilled the State plans for the output of cocoons by 103.3 per cent for the second year running. Results are especially good in the Pap and Uichinsk raions. Efforts are still being made to intensify the production of cocoons and the kolkhozes of the Namangan oblast have undertaken to deliver to the State 2,500 more centners of cocoons than stipulated. In 1954 attempts were made to introduce a third, autumn, feeding of the silkworms. Until then autumn feedings were carried out only by the silk sovkhozes run by the Uzbek Ministry of Agriculture; the Irtyskar silk sovkhoz of Samarkand oblast obtained 81.4 kg. from each tray after the autumn feeding. High harvests were also reported from the Khodzhiabad silk sovkhoz in the Andizhan oblast and from the kolkhozes of Tashkent and Fergana oblasts - the two oldest sericultural centres of the republic. In October 1954 it was reported that the State plan for the output of cocoons had been fulfilled and that the silk-processing industry in consequence would receive 300 tons of cocoons more than in 1953.

The extension of mulberry plantations, which form the basis of sericulture and on which its further development largely depends, is well under way in Uzbekistan. In the spring of 1953, 463 hectares were planted with mulberry trees and 150 hectares sown with mulberry seeds; 750,000 trees were planted in linear plantations and 2,178 in circular plantations.

By the beginning of the Second World War nine silkworm-breeding establishments had been set up in Uzbekistan; these produced annually 570,000 trays of silkworm eggs. Although the present number of breeding establishments is not stated, it appears that sufficient silkworm eggs are produced to obviate the need for imports from abroad and to permit the export of eggs to neighbouring republics.

Silk-processing industry

The silk-processing industry of Central Asia appears to be rapidly expanding. In Turkmenistan the output of silk fabrics in 1953 represented an eight per cent increase over that of 1952. Substantial increases are also reported from Kirgizia where 53.6 times more silk fabrics were produced in 1953 than in 1940. The silk kombinats of Frunze and Osh - the latter an important silk centre since the eighth century - are said to be working to full capacity and beating all
previous records.

More detailed accounts are given of the silk industry in Uzbekistan and Tadzhikistan. Until the Revolution there were no mills in Uzbekistan (sic), all the raw silk having been taken to European Russia or abroad to be manufactured into finished products; today, however, the republic has powerful silk kombinats of its own. The largest of these is the Stalin Silk Kombinat in Tashkent, which went into production in 1934; by 1947 it was employing 30,000 workers and in 1953 was reported to be producing over 14m. metres of silk fabrics per year. Silk spinning and weaving mills also exist at Margelan, Samarkand, and Bukhara. The Margelan silk kombinat, built some twenty-five years ago, now produces two-thirds of the total output of silk fabrics in the Fergana Valley. It was reported in 1953, however, that the re-equipment and extension of the kombinat was proceeding "unnecessarily slowly"; in the dyeing section there was a shortage of dye vats, but there was no room to put in any new ones, and in other sections so much had been added that overcrowding presented a serious problem. Work was also being impeded by the unsatisfactory enforcement of the system of progressive quotas, lack of coordination among the various sections of the kombinat, and unrhythmical work. The position, however, appears to have improved in 1954 as no complaints or criticism have appeared in the press and in October it was reported that the kombinat had exceeded the September quota for unbleached fabrics by 15,000 metres and for finished fabrics by 30,000 metres, and had produced 356 kg. of silk thread. The hope was expressed that the kombinat would reach its target for 1954 ahead of schedule and that the productivity of labour which had already increased by six per cent would be raised by a further 3.3 per cent.

In Tadzhikistan the Stalinabad silk mill is also expanding: in 1946 the kombinat had 18,500 spindles and this number is said to have considerably increased though no precise figures are given. In 1953 a new textile wing was completed and 266 new weaving machines have been installed. The Leninabad silk kombinat - the leading industrial undertaking of the oblast - was built in 1927 during the first Five-Year Plan, since when it has been considerably expanded and re-equipped. British flyer thread guide machines for linen are being replaced by ring looms of Russian design and manufacture. These have interchangeable parts and the productivity of the spindles is reputed to be seventy per cent greater than that of the old ones. The kombinat, it is said, no longer produces any fourth-quality weaves and only a minimum of third-rate fabrics. In 1952 a sixfold increase in production over 1949 was recorded, and on 24th January 1954 it was reported that the kombinat exceeded the set targets for the last quarter of 1953. In the first eight months of 1954 the quantity of fabrics produced over and above the plan was said to be more than double the whole yearly output of
the kombinat in 1940, and a new dyeing plant which came into production in the second half of 1954 is said to have raised the output three and a half times. By the end of the year the kombinat was producing 42,000 metres per day (18,000 to 20,000 metres for every shift), and in October it was announced that the output represented a 37.6 per cent increase over 1953.

... 

The silk industry of Central Asia has come a long way since the days when the rearing of the silkworms and the processing of the silk was carried out in the peasant household. Today with the establishment of specialized silk sovkhozes, silkworm-breeding stations and large industrial plants, the silk industry has an increasingly important part to play in the economy of Central Asia.

Sources
2. Sotsialisticheskii Uzbekistan No.11. 1953.
LIFE ON THE NEW LANDS OF KAZAKHSTAN

The following two slightly abridged translated articles are taken from the all-Union daily press; they are typical of the many accounts now appearing in Soviet publications describing the life of the settlers in the new sovkhozes on the grain lands of Kazakhstan.

I

We were shown a corrected map in the Party oblast committee at Akmolinsk which showed twenty-seven new sovkhozes. The question was which to visit. We were told many interesting things about the Izobilnyi, the Dalnii and the Stepnyak sovkhozes and we wanted to go everywhere, but this was impossible. So we chose a route that goes along the railway track and the banks of the brimming Ishim river in the southern part of the oblast, where the majority of the sovkhozes have been established. To reach the new undertakings one must plunge deep into the steppe, for it is in those parts, formerly almost untrodden by human foot, that the sovkhozes have sprung up.

The distances are vast, and at times the Kazakh steppe seems limitless; but now a vigorous life is pulsating here. If one travels by day one meets tractors, mobile petrol tanks, and lorries. The vast areas of black earth are scarred by the lines of furrows. Furrows are made four to five kilometres long and the width of the fields is often as much as ten to fifteen kilometres. Ploughing goes on day and night, but the tractor drivers prefer working at night when the cool air prevents the engines from becoming overheated and so more work can be done. At night electric reflectors as bright as lighthouses throw their beams on the tractors.

Every new sovkhoz is remarkable for its huge size - twenty to thirty thousand hectares of ploughed land. It is hard to make an exhaustive description of any one sovkhoz because everything here changes so quickly. From one week to another everything looks different. Not long ago there were empty spaces, then came the workers' villages of tents, and now there are groups of wooden houses. We were directed to the Krasnogvardeiskii sovkhoz along a beaten track but this had already been ploughed up and in
The West-Kazakhstan steppes have been the scene of many historic events—the Pugachev rebellion of 1773 started here, and here Chapayev met his death during the Civil War. These sketches by the artist Andrei Livanov, who visited West-Kazakhstan during the summer of 1954, show something of the drive for grain now in progress in Kazakhstan and of the old primitive conditions which exist side by side with modern methods.

The sketches are reproduced from Molodoi Kolkhoznik No. 10 of October, 1954.
its place a short and convenient road had been built.

It is no easy task to make habitable uninhabited lands. The problems are how to settle the people, where to get water, how to organize their food supplies, where to put medical posts and baths. The task is complicated by the fact that there are no woods in the neighbourhood and many lakes contain only salt water. These difficulties have been partly overcome but some still loom ahead. But despite the shortages and difficulties there is a feeling of daily progress and even of inspiration.

Immigrants from the Kharkov, Dnepropetrovsk, Zhitomir, Voroshilovgrad, Poltava and Odessa oblasts, and from Leningrad, Kislovodsk, and Alma-Ata are working on the Marinovskii sovkhoz. This sovkhoz took roots later than its neighbours, only in the middle of June. In a short time the "Marinovskii" made good progress both in ploughing and in the building of a small settlement. Mention must be made of the work of a good organizer, a Stalingrad man, the director of the sovkhoz - Anatolii Vasilyevich Zandalov. By his well-planned and careful organization, his firm attitude, his just requirements and at the same time kindly attention to his people, he has won their affection.

Some Young Communist girls of the Marinovskii sovkhoz recently appealed through Pravda to other girls to come and work on the virgin lands. This call has met with considerable support among the girls of Moscow, Leningrad, the Ukraine and other parts of the country, and as a result many new workers have come to the new sovkhozes. Recently a party of Moscow girls signed on with the Marinovskii sovkhoz; on arrival they were comfortably settled and started work with zeal.

Anyone calling at the Kairakty sovkhoz (Director Nikolai Maksimovich Mamontov) receives the same impression of friendship and cooperation. In this sovkhoz there are 270 settlers who have come from the Ukraine, the Moscow oblast and Leningrad. There are thirteen Party members and 134 Young Communists. In the central farm buildings the number of tents is decreasing and there is a corresponding increase in the number of houses going up. It already has the air of a little town with defined streets - although in some places these are filled with building material put there for the construction of the future houses.

The Kairakty workers take an interest in public and cultural affairs as well as in the success of their productive work. Very often there are cinema shows and visits by theatrical artists. The workers arrange amateur performances among themselves; their dancers gave shows at the central farm buildings and also for the outlying tractor brigades.
The Komsomol members have issued a wall newspaper called Za Podem Tseliny. (Plough the virgin soil!), pamphlets, and a humorous paper. The football field lies alongside the tents. On the volley-ball grounds at the field station, the tractor and trailer men are preparing for matches with the brigade teams.

During their holidays students and schoolchildren from Alma-Ata came to Kairakty on their own initiative. Fifteen students from the Mining and Metallurgical Institute have worked from dawn to dusk building houses for sovkhoz workers. These eager energetic young people recall the tradition of the students who worked on the constructional undertakings of the first Five-Year-Plan, on the Great Fergana and the Volga-Don canals.

One cannot get a complete idea of life on the sovkhoz by looking only at the central farm building, but one must also see the tractor brigades. Thirteen kilometres away is to be found the chief sovkhoz brigade under the brigade leader Vladimir Makhanov. He received us at his family tent; it was clean and comfortable and consisted of two beds and a dining table. From the very beginning of the drive the brigade leader decided to make his home on the virgin lands and so he sent for his wife and son. Work and family life go hand in hand. Makhanov speaks lovingly of the land which though new is already dear to him. "Formerly," he said, "this was just a desert, now there is not a hectare of ground which has not been traversed by man, tractor or machine. It's fertile here; when you go along at night the air is fresh, there's something dream-like about it. Our tractor men are all well-chosen - young, intelligent, good chaps. Some of them began their technical training here while working as trailer men."

When we started to make a note of some of their names he interrupted us - "If you are writing down any names don't forget one person, our washerwoman, Maria Krutayeva. She works splendidly for us." Talking of the adults, we must not forget the children - Makhanov's son, the pre-school age Vova, the darling of the brigade. With their parents' permission the tractor men take the children to their field stations and the drivers take them for trips on their lorries.

The workers of the new sovkhozes love the wide and beautiful steppes of Kazakhstan. The lands are fertile and provide an inexhaustible source for the production of vegetables and other crops; and they are especially suited for the cultivation of cereals. Only a few months have elapsed since the new sovkhozes were founded. The Government has assured them of first-class technical aid, and these new techniques and the enthusiasm of the settlers have produced the first significant successes. Kazakhstan has overfulfilled its plan for the reclamation of the virgin and derelict...
lands. By 10th August, 6,522,340 hectares had been ploughed. The creation of sovkhozes in the heart of this land is transforming life in these far-off steppes.

II Fire!

As time went on and horses and cattle arrived at the sovkhoz the problem of forage for them arose, and so a hay-cutting brigade was formed which consisted almost entirely of girls. The grass was both cut and brought to the places where the haystacks were to be erected, by mechanical methods.

On the day in question a fairly stiff breeze was blowing, always unpopular with the haymakers, as it hampered their work in building the stacks.

The travelling shop came along and the man in charge did some brisk business, especially in soap and razor blades. In five minutes all his stock had been sold and everyone's needs satisfied, whereupon he went off to refill and visit another brigade. Then they all trooped off to dinner and had hardly sat down before a cry was raised - "The steppe is on fire", and sure enough, three kilometres from the field station of the haymaking brigade, a cloud of grey smoke was rising from the crest of a long-shaped mound.

All thoughts of dinner were forgotten and one and all rushed off in that direction. The fire was advancing on a wide front, fanned by the wind, and it was soon seen that eighteen haystacks lay in the direct path of the flames, to say nothing of some thousand hectares of corn, all ready for cutting. The girls and their brigade leader rushed to meet the advancing fire with but one idea - that of halting it somehow or other. But the flames came on like a rising tide.

Chief agronomist Vasilii Arsentyevich Gorbachenko, who happened to be in that region, hastily sent his driver to bring up a tractor which was working in the distance. The tractor driver of the first brigade, Burnos, then engaged his ploughs in the earth and started working with all possible speed to make a ploughed strip in the route of the fire and thus prevent its advance. The girls watched the flames advance to the ploughed strip and seem to surround tractor and driver. Then the engine failed.

Gorbachenko then sent his driver with all speed to get help from the third brigade. Burnos remained with his tractor. The girls ran towards him and attempted to beat down the flames, which were now one metre high,
with anything they could get hold of, their scarves, jackets, and even bundles of grass, and it became apparent that the conflagration was moving forward less quickly where they were fire-fighting than on the flanks. But all their efforts were not enough. Scorched and weary and ready to weep from sheer helplessness they had to give way slowly until the fire was only about ten metres from the nearest haystack. All seemed lost, but suddenly the first of the column of tractors arrived and at full speed started to plough up the ground and halt the flames.

During the first half of 1954 each of the four republics of Central Asia, and Kazakhstan, held a republican conference to discuss the budgets of the preceding and current years. The debates provide a mass of haphazard information on every aspect of the economies of these states, ranging from plans for a threefold expansion of agricultural investment in Kazakhstan to complaints that one of the finance ministries sends telegrams two hundred words long costing 325 rubles to an address in the same street. Much of the debates are taken up with exposures of inefficiency and even corruption. If misunderstanding is to be avoided the criticisms must be viewed against the background of rapid economic advance, evidence of which is to be found in many of the budget figures and also in the Gosplan reports on plan fulfilment in 1953 for these republics.

The material for this article is taken mainly from the budget debates, supplemented where possible by information from the reports of the execution of the State plan for 1953 issued by the State Planning Commission of each republic.

Industrial production in 1953

The overall increase in industrial production in 1953 for each republic is given in the Gosplan reports as follows:
TABLE I

<table>
<thead>
<tr>
<th>Republic</th>
<th>Percentage increase in production over 1952</th>
<th>Percentage of plan fulfilment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kazakhstan</td>
<td>13</td>
<td>97</td>
</tr>
<tr>
<td>Uzbekistan</td>
<td>6</td>
<td>101</td>
</tr>
<tr>
<td>Kirgizia</td>
<td>15</td>
<td>100.1</td>
</tr>
<tr>
<td>Tadzhikistan</td>
<td>14</td>
<td>103</td>
</tr>
<tr>
<td>Turkmenistan</td>
<td>8</td>
<td>101</td>
</tr>
</tbody>
</table>

Thus production in Kirgizia was 15 per cent higher in 1953 than in 1952, in Uzbekistan 6 per cent higher, while the figures for the remaining republics fall in between these two extremes. Naturally the value of these indices depends in the first place on how they have been drawn up and secondly on the level of production actually reached in 1952.

The figures giving the percentage of plan fulfilment for 1953 for the various industries are of less interest. They show, however, that the expansion of the economy was on the whole correctly planned. The weak spot as far as plan fulfilment is concerned (though of course not necessarily as far as percentage increase in output is concerned) is building materials. The output of bricks in Tadzhikistan was only 50 per cent of plan, in Kazakhstan 80 per cent of plan. On the other hand chrome leather in Kirgizia was 130 per cent of plan, meat in Turkmenistan 130 per cent also.

Republican budget figures for 1953

Before looking at the overall figures for budget revenue and expenditure it is perhaps as well to point out two ways in which the republican budgets differ from say the British budget. In the first place less than a fifth of total Government expenditure in the republics comes from the republican budgets; more than four-fifths come from Union funds. Secondly, a large part of investment in industry is done through the budget, so budget allocations give a much fuller picture of the republican economy than the British budget does of the British economy.

The figures for the 1953 budget are given as follows:
TABLE II
(All figures in thousands of rubles)

I Revenue

<table>
<thead>
<tr>
<th></th>
<th>Republican</th>
<th>Local</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kazakhstan</td>
<td>3,701,232</td>
<td>637,311</td>
<td>4,338,543</td>
</tr>
<tr>
<td>Uzbekistan</td>
<td>2,631,343</td>
<td>732,004</td>
<td>3,363,347</td>
</tr>
<tr>
<td>Kirgizia</td>
<td>990,659</td>
<td>135,465</td>
<td>1,126,124</td>
</tr>
<tr>
<td>Tadzhikistan</td>
<td>984,746</td>
<td>118,153</td>
<td>1,102,899</td>
</tr>
<tr>
<td>Turkmenistan</td>
<td>923,821</td>
<td>136,378</td>
<td>1,060,199</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>9,231,801</strong></td>
<td><strong>1,759,311</strong></td>
<td><strong>10,991,112</strong></td>
</tr>
</tbody>
</table>

II Expenditure

<table>
<thead>
<tr>
<th></th>
<th>Republican</th>
<th>Local</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kazakhstan</td>
<td>1,854,809</td>
<td>2,483,734</td>
<td>4,338,543</td>
</tr>
<tr>
<td>Uzbekistan</td>
<td>1,278,859</td>
<td>2,084,488</td>
<td>3,363,347</td>
</tr>
<tr>
<td>Kirgizia</td>
<td>511,598</td>
<td>614,526</td>
<td>1,126,124</td>
</tr>
<tr>
<td>Tadzhikistan</td>
<td>503,943</td>
<td>598,956</td>
<td>1,102,899</td>
</tr>
<tr>
<td>Turkmenistan</td>
<td>513,889</td>
<td>546,310</td>
<td>1,060,199</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4,663,098</strong></td>
<td><strong>6,328,014</strong></td>
<td><strong>10,991,112</strong></td>
</tr>
</tbody>
</table>

The total budget expenditure of all five states added together is thus about 11 milliard rubles, and is thus roughly 20 per cent of the nearly 60 milliard ruble budget of the RSFSR.

In 1954 the total revenues for Kazakhstan were to be 5,350m. rubles, a rise of over 20 per cent compared with recent annual rises of 3.5 per cent. This reflects the extent of the drive for grain expansion in Kazakhstan.

Payments to the Government

The budget debates mention a number of interesting points about finance. There is a recurring complaint that revenues are not paid in on time. Some State enterprises evidently use tax monies due to the Government as working capital for as long as they can. In both Uzbekistan and Kirgizia much is said about this malpractice. Yet the proportion of planned revenue actually collected in both these republics is high, 97.6 per cent in Uzbekistan and 98.5 per cent in Kirgizia. This failure quite to achieve the revenue target is of interest because
in many branches of the economy large unplanned losses are reported, which mean lower revenue payments to the Government out of the profits. In Uzbekistan, for example, unplanned losses in industry in 1953 amounted to 125m. rubles, while the Ministry of Sovkhozes made only 12 per cent of its estimated profits. In Kirgizia the Ministry of Housing made a loss of 3^{1}_2m. rubles instead of its planned profit of 2m., and the MTS paid 25m. rubles less than planned in taxes. Sovkhozes in Kirgizia were expected to make an 18m. ruble profit, and instead made a loss of 3m. In Kazakhstan, sovkhoz losses averaged 100m. a year for three years, of which a considerable part is said to be due to embezzlement. In Tadzhikstan embezzlers are said to have made off with 2m. rubles. Since, in spite of these failures, revenue targets are so nearly achieved, it appears that the Government must allow for a considerable degree of non-fulfilment of plan by a number of branches of the economy.

Oblast funds

Republican governments exercise considerable control over the finances of the local authorities under them. Very varied treatment is meted out to different localities. In Kirgizia, for example, local authorities retain a certain percentage of "turnover tax": Osh oblast is allowed to keep 23 per cent and Frunze town 3 per cent, while the Tien-Shan and Talass oblasts keep the whole 100 per cent. From the agricultural tax and from kolkhoz income taxes all the oblasts except Tien-Shan keep 30 per cent, the latter once more keeping 100 per cent. From taxes on bachelors, spinsters, and small families, Osh retained 30 per cent and the other oblasts 40 per cent, except Tien-Shan which is allowed 70 per cent. Of MTS revenues, Osh and Dzhalal-Abad keep 10 per cent, Frunze 20 per cent, Issyk-Kul 30 per cent, Tien-Shan 100 per cent, and Talass only 5 per cent. From personal taxes Frunze, Dzhalal-Abad, Issyk-Kul keep 25 per cent, Osh 24 per cent, Tien-Shan 50 per cent, Talass 100 per cent, but Frunze town only 10 per cent.

Agriculture

Grain expansion in Kazakhstan dominates the economic scene. Vast sums from both Union and republican sources are being poured into the land. Including Union funds, 5^{1}_2 milliard rubles were to be spent on agricultural expansion in 1954, a figure larger than total expenditure on everything in the republican budget and several times as large as the total republican budget expenditure in any of the other republics. (See Table II.) Expenditure from republican sources on agricultural expansion (included of course in the 5^{1}_2 milliard mentioned) was to be 65 per cent greater than in 1953. Of the 5^{1}_2 milliard, no less than
2.5 milliard were to be (under Union appropriation) to expanding the MTS network.

Machinery, agricultural equipment and labour are reaching Kazakhstan in a steady stream. Expansion at this rate is giving rise to many problems of coordination. Deputies point out in the debates again and again that one or another part of the expansion is going too slowly or too fast and thus causing difficulties. 12,000 specialists arriving in Akmolinsk oblast, for example, found a shortage of accommodation of any sort in the main centre Atbasar, and even a shortage of drinking water. Buildings were planned in 1953 in this oblast requiring 100m. bricks when the output of the local brick kilns could not exceed 20m. per annum.

In the budget discussion of Kirgizia there was some discussion of rural electrification, which seems to have been proceeding unevenly. In the Chatkal raion of the Talass oblast, of 2.75m. rubles allocated for the construction of a power-station in 1954 only 100,000 rubles had been used by the end of March 1954.

There are big plans for expanding cotton cultivation in Uzbekistan and vast sums are being allocated to irrigation though in 1953 only half the irrigation plan was actually carried out. This seems only to have acted as a spur for still more extensive plans in 1954, for capital investment in irrigation was to receive appropriations four times as great as those made in 1953 and an extra 133,000 hectares of land were to be cultivated. In the first four months of last year, however, only 14 per cent of the irrigation appropriations were taken up. The plans for increased cotton output resting on this irrigation, and to which the whole economy of Uzbekistan is geared, are large. Between 1953-58 cotton output is planned nearly to double, going up from nearly 21/2m. tons in 1953 to 41/2m. tons in 1958.

Large cotton expansion is also planned for Turkmenistan. Output has gone up 50 per cent since before the war, and rapid increases are forecast - 400,000 tons by 1955, and then a 50 per cent increase in three years to 620,000 tons by 1958. To achieve this target new irrigation works, 10 new MTS, 5 cotton ginneries, and 34 cotton-collecting centres are planned. The Kara-Kum canal is now under way, the republic receiving 100m. rubles from Union funds for it in 1954.

The part played by the sovkhozes is criticized in one republic after another. Sovkhozes are meant to be an example to all agricultural collective farms. Yet in Kazakhstan for years they have not fulfilled the Gosplan delivery targets for agricultural produce. The newest machinery sent to them in 1953 has been poorly
used, 15 per cent of the tractors and 25 per cent of the combines remaining idle. In 1953, 70 per cent of the sovkhozes operated at a loss and embezzlement was wide-spread. In Uzbekistan, the Ministry of Sovkhozes made only 12 per cent of its planned profits. In Kirgizia sovkhoz profits were planned at 18m. rubles and instead they made a loss of 3m. Meat costs in this republic were twice what was planned, and many poultry sovkhozes delivered only 20 eggs per hen over the year at a price three times that of the market.

Industry

Uzbekistan, and particularly the Tashkent area, is the hub of industrial production in Central Asia. Yet even in this republic three times as much money was provided by the republican budget for agriculture as for industry. A great variety of capital and consumer goods are produced including textiles, machine tools, chemicals and tobacco products. The figures for increase in industrial production in 1953 given above (see Table I) show, however, only a 6 per cent rise for Uzbekistan, less than half that of the three best republics. Some possible reasons for this comparative lagging emerge from the budget debates. Mismanagement of every kind in industry is cited. Some firms have far too many rejects, and have failed to reduce their percentage. Others have produced much less than they planned, and so made large unexpected losses. Cotton ginneries, so important in Uzbek industry, find their costs 30m. rubles more than previously because of a higher output of lower grades of fibre and seeds. Careless warehousing and storage of raw cotton-seeds at the ginneries have led to losses of 60m. rubles, increased by imperfect grading to 80m. An interesting criticism made is that machinery is too often idle, to a total of 1½m. man hours in 1953. The Tashkent tobacco plant alone accounts for 100,000 man hours of idle machinery during the year.

Kazakhstan's chief industrial production is oil; the industry is a large contributor to Government revenue, and overfulfilled the 1953 plan target. Its output is expanding fast, going up 30 per cent between 1952 and 1953. More turbine drilling and "socialist competitions" are cited as the causes of this increase, but capital development is felt still to be lagging. The Kazakh oil trust works in extraordinarily difficult conditions in the semi-desert of the North Caspian lowlands, and efforts to improve the living conditions and amenities of employees are held up by shortages of all kinds. Shortages of cooperative factors are also preventing boring equipment from being fully used.

In Kirgizia industrial expansion in 1953 took place faster than in any other republic, output increasing by 15 per cent. As compared with 1950, output at the end of 1954 is planned to be up 60 per cent including
an increase of $2\frac{1}{2}$ times in oil production, 30 per cent for coal, 75 per cent for metals, and 50 per cent for consumer goods. Kirgizia is an important coal-producing republic, but deputies complain that the coal industry is not developing as it should. New fields are not being developed in, for example, Aksai, although they would save transport to some of the Tien-Shan raions, and although miners' wages have risen about 75 per cent since 1946, houses and amenities lay behind. Delegates also expressed much concern over the lack of variety of consumer goods, claiming that common things like pens and toys which could quite well be made in Kirgizia are being imported from other parts of the Union.

Consumer goods

Delegates in a number of the republics complain about consumers' needs not being properly studied by the trading organizations, and give some telling examples of the waste to which this can lead. In Tadzhikistan, for example, consumer goods worth 5m. rubles were sent to Garm and turned out to be entirely unsuitable for sale there. As a result, they had to be despatched back to Stalinabad where they came from. Repeated instances of this sort of thing had led the trading organizations into losses over 1953. In Kirgizia, the Chalvodar shoe plant is guilty of the same sort of neglect of the consumer. It turned out the right number of shoes in 1953, but unfortunately not in the sorts and sizes which people wanted. As a result it made losses of 8m. rubles and started 1954 with surplus stocks 300 per cent too large.

Education

A large proportion of the State budget allocations go to health and education. The Tadzhikistan Government, for example, is devoting over 30 per cent of its total outlay in 1954 to education alone. In Turkmenistan over half the budget outlay goes to education, health, and social security.

According to the Minister of Education for Tadzhikistan, quick advance is being made in the republic on the educational front. In the last four years four hundred seven-year schools, and ninety middle (i.e. ten-year) schools have been opened. The standard of textbooks has been raised, and curriculums brought more into line with local needs.

Another problem is that of finding enough properly trained teachers. In Kazakhstan, for example, higher education is held back because 60 per cent of the educational and welfare workers have only a five to seven year school training. In Tadzhikistan over 2,000 teachers have not
acquired middle-school graduation certificates, although compulsory middle-school attendance has been introduced in a fair number of towns. Complaints of poor equipment and delays in the construction of schools are made by many deputies from Kirgizia. Some schools are so overcrowded that they work three shifts, while there is no money for maps and equipment of any sort, let alone laboratories and gymnasium.

Health

More was spent on hospital buildings in 1953 than in 1952. In Kazakhstan the plan for investment in the health services was 100 per cent carried out, many new beds added to the hospitals, and doctors and nurses' qualifications raised. Nevertheless there are many complaints. In Dzhambul itself there are no proper, permanent hospital buildings, ordinary houses having to serve instead. Earnest requests were made by deputies for a proper hospital building with 250 beds.

In Kirgizia, 10 per cent more was spent on hospital construction in 1953 than in 1952, nevertheless there is much talk of unnecessary delays. The Dzhalal-Abad maternity hospital for example has been under construction ever since 1951.

Turkmenistan invested more in health in 1953 than previously, but large amounts of money allocated were not taken up. This delay affected particularly the reconstruction of Ashkhabad after its devasting earthquake in 1948. Large Union funds were put at the disposal of the area for reconstruction but serious difficulties are apparently preventing the work being carried out. Only half the houses planned have been built, and 40 per cent of the population still live in temporary shacks. This inability to cope with plans for which ample funds are available is attributed to a manpower shortage, said to result from poor "mass political" work. Of 4,500 new workmen taken on for reconstruction during the year no less than 3,700 were dismissed.
PUBLIC SERVICES

HEALTH SERVICES IN CENTRAL ASIA
(UZBEKISTAN, TADZHIKISTAN, KIRGIZIA)

History and development - Medical education and research - Epidemic diseases - Tuberculosis - Mother and child welfare - Organization of health services - Urban services - Rural Services - Construction programme - Health resorts and sanatoria.

There were, in 1913, 57 hospitals and clinics (dispensaries) with 128 doctors in Uzbekistan. Kirgizia in 1914 had 6 hospitals with 112 beds, 30 clinics and 16 doctors, while Tadzhikistan had three medical officers and a few orderlies attached to the garrisons at Khorog, Pendzhikent and Ura-Tyube. The post-revolutionary expansion of the health services has been very great; by 1938 the number of doctors in Uzbekistan had reached 2,367 and by 1940 Kirgizia had 81 hospitals and 336 clinics with 4,644 beds, and 96 creches with 2,759 beds.

Post-war expansion has been similarly great. 48 new medical institutions were built in Uzbekistan between 1947 and 1954, and a further 100 are projected; by 1950 the republic had 550 medical centres and about 300 mother and child welfare institutions. In Kirgizia there were 406 clinics in 1952, 160 hospitals with 8,100 beds in 1953, and 1,736 doctors and 4,794 nurses in 1954. The number of creches rose from the 1940 figure of 96 to 128 with 4,724 beds. In Tadzhikistan there are now 250 hospitals and clinics, several hundred doctors, and over 2,000 feldshers and nurses; health expenditure has risen to a per capita allocation of 96.2 rubles - over two and a half times the 1940 figure. In Kirgizia the general total for 1952 was 148m. rubles - three times the figure for 1940; the figures for 1953 and 1954 are 161,603,000 rubles and 190m. rubles respectively.

Medical education and research

Medical education in Uzbekistan is provided by four institutes and fifteen tekhnikuma for middle-grade medical personnel. The institutes (only three of which were in existence in 1953) train
4,500 pupils, most of whom are said to be indigenous inhabitants. The Tashkent Medical Institute in which, since its foundation, over 8,200 doctors have qualified - 3,700 of them between 1946 and 1950 - is the senior such establishment in Central Asia. Kazakhs, Tadzhiks, Turkmens, and Kirgiz attend it; the first Uzbek physician qualified in 1924 and since then 1,356 Uzbek doctors have been trained here. In 1954, 2,000 students were in attendance, 700 of whom were of Central Asian nationality. 156 of its staff of 377 qualified at Tashkent. 14 of the 44 professors, half of the assistants and a third of the lecturers are Uzbeks. The institute has published 4,000 papers, 150 monographs and 20 symposia since its inception.

Several specialized medical research institutes work in connection with the Uzbek Academy of Sciences and the all-Union Academy of Medical Sciences.

In Tadzhikistan there are the Stalinabad Medical Institute, three medical tekhnikums and a few training schools for nurses. These establishments do not, it seems, meet the need for qualified workers, and the demand for more Tadzhik doctors, especially for women doctors, is very great.

There is a medical institute in Frunze, but the number of other training establishments in Kirgizia is nowhere stated. The Kirgiz Medical Institute is said to train hundreds of native doctors; one of them - Isa Akhunbayev - is a corresponding member of the all-Union Academy of Medical Sciences, and has been decorated by the Government of the USSR.

Between the 20th and 25th September 1954 a joint conference of the USSR Academy of Medical Sciences and of the Uzbek Ministry of Health took place in Tashkent. The conference was attended by delegations from China, India, Indonesia, Burma, Pakistan, Mongolia, North Korea, North Vietnam, Egypt, Iran, Syria and the Lebanon. Ministers of Health led delegations from the other Central Asian republics. In his report to the conference, S.R. Karynbayev, the Kazakh Minister of Health, said that 1,410 doctors and 8,400 feldshers and nurses were at work in rural areas of Kazakhstan, and 471 hospitals and clinics existed in the republic. In the ensuing debate K.R. Farkhadi of the Samarkand Medical Institute, Professor G.A. Batkis, member of the USSR Academy of Medical Sciences, F.U. Nurgazeva, the Kirgiz Minister of Health, K.A. Akhmedov, the Tadzhik Minister of Health, and other delegates took part. Altogether some thirty reports on different aspects of the regional pathology of Central Asia were read at this joint conference. "In the twenties," said Professor Zhdanov, "cholera was eliminated in the Soviet Union, and smallpox in the thirties,
while the incidence of several other infectious diseases including malaria, was greatly reduced. The eradication of malaria is our most pressing task for the next few years."

**Epidemic diseases**

Universal vaccination for smallpox was completed in 1936, and since then no case of smallpox has been reported in Uzbekistan. The Vaccines and Serum Institute in Tashkent was the first bacteriological laboratory to be opened in Central Asia. **Rishta** (dracunculosis) first described by Avicenna, was for centuries the scourge of Central Asia - about one in five of the population suffered from it. Prophylactic measures and a vigorous hygiene campaign, for which the Tropical Institute, founded at Bukhara in 1924, was largely responsible, have resulted in its extermination, the last reported case in Uzbekistan being in 1931.

Plague and cholera have been completely eradicated in Central Asia. Considerable success has been achieved by research in combating leishmaniasis, helminth infestations, brucellosis, and goitre. Trachoma, scab (mange), for the treatment of which a prophylactic clinic with 25 beds has been opened in Tashkent under Professor S.A. Massumov, Pendinskaya ulcer (Borovskii disease), and other skin diseases are being gradually eliminated.

Before the Revolution, eight out of every ten Uzbeks suffered from malaria. 150 anti-malarial institutions, headed by the Institute of Malaria and Medical Parasitology in Samarkand are combating the disease in Uzbekistan. In the last 15 years 90,000 hectares of marshland have been drained and 20,000 kilometres of waterways cleaned. 22m. cubic metres of soil have been excavated and over 100m. rubles spent on anti-malarial "hydro-technical operations", with the result that in all 17 raions of Uzbekistan no case of malaria was reported in 1953. Similar measures have been taken in Kirgizia and Tadzhikistan and the mortality rate has been sharply reduced.

**Tuberculosis**

Between 1911 and 1914 tuberculosis was responsible for one tenth of the total mortality in Uzbekistan. The first anti-tuberculosis clinic was opened in Tashkent in 1920; by 1926 five were in existence - two in Tashkent and one each at Samarkand, Kokand and Andizhan. The Uzbek Anti-Tuberculosis Research Institute, founded in 1936, is in charge of training, treatment and preventive measures. Four professors, six assistants and fifty doctors, twenty of them Uzbeks, work in its clinics and research department. Several new preparations have been
evolved in Soviet laboratories (sic) - streptomycin, pask, tibin, ftivazid, and others. Their employment, combined with sanatorial therapy, collapse therapy, and surgical treatment has resulted in many complete cures.

There are now thirty anti-tuberculosis clinics and 500 doctors in institutions combating tuberculosis in Uzbekistan. Most of these clinics have X-ray units, and mobile X-ray teams are employed among the rural population. Group examinations are being carried out. Anti-tuberculosis units have been organized in most urban raions in polyclinics and the medical and health centres of factories, large plants, and institutions. Only 18,407 people were embraced by the scheme of prophylactic and X-ray examination in 1944; in 1948 their number was 140,000 and in 1953 over a million. B.C.G. vaccination of children is becoming universal; only 1,000 new-born infants were immunized in 1938, but by 1953 such immunizations had become the usual practice in Uzbek maternity wards.

**Mother and child welfare**

The deputy Minister of Health in Uzbekistan, Z.M. Dzhamalova, has stated that in the last eighteen years the number of pediatric specialists has risen six times and the number of gynaecologists three times. Maternity homes, women's clinics, creches, and other mother and child welfare centres form a particularly important part of the Ministry's building programme.

Midwifery centres have been organized in kolkhozes, while clinics - and in larger rural centres, maternity hospitals - have already been created in great numbers.

The policy in Kirgizia is to allot the best available houses in the village for the accommodation of these services; and such centres are to be multiplied in the near future.

**Organization of health services**

Control is exercised over all institutions through a system linking town and raion councils with the republican and, ultimately, with the all-Union Ministry of Health. Bureaucracy in this system is widely criticized. The Kirgiz ministry is said to have issued 22,000 different directives, orders and instructions in 1953, although the Minister, her deputy, and other officials seldom visited the various districts of the republic. The conference of health workers in Frunze in July 1954 also found fault with the ministry's bureaucratic methods and ineffectiveness in carrying out resolutions taken.
Hospitals in the raion towns of Tadzhikistan are said to lack the proper ministry control; this produces an irresponsible attitude towards work and the patients. Pluralism is the great temptation in the present shortage of doctors. Dr. U.R. Mullovandov, a physician at the Stalinabad children's hospital, appeared before the Tadzhik Supreme Court in July 1954 on the charge of systematically abusing his official position. He worked not only at the hospital, but also at the Tadzhik Promstrakhsovet (council for industrial insurance), taught in two medical schools and held the position of a district doctor. He had no time left to visit patients; it was his practice to demand substantial bribes before sending people to sanatoria.

The Tashkent town council has heard complaints of the uneven distribution of the city's medical services. Readers' letters to Pravda Vostoka complain of the apathy and negligence of the staff of the city's clinics and hospitals, and of the inefficiency of the pharmacists - who are often without the prescribed medicines. Members of the council and of the Uzbek Ministry of Health seldom visit the medical centres of Tashkent.

Urban services

Health services, however, are more efficient in the towns of Central Asia than in the hinterland. There are now 26,800 beds in the hospitals and clinics of Uzbek towns - 29 times the 1914 figure, according to R. Sagatov, Uzbek Minister of Health. Frunze has 60 hospitals, maternity homes, clinics, and creches. None the less there is an acute need for more beds in some Tashkent hospitals, according to criticisms made by members of the town council. In Kirgiz and Tadzhik towns, the shortage of doctors and particularly of epidemiologists, is impairing services. The hospital at Tokmak has no X-ray unit; the maternity and isolation wards are inadequately accommodated, according to Dr. Bragin, the hospital's chief physician.

Town councils are also responsible for general sanitary conditions and hygiene propaganda. The state of the streets and yards of Tashkent has provoked sharp criticism of the town council. In Tadzhikistan, doctors in charge of town sanitation are said merely to register violations of the law and make no attempt to eradicate them. The local councils pay little attention to the problems of water supply and sanitation in towns, settlements and kolkhoz kishlaks. The sanitation of the Leninabad, Ura-Tyube, Proletarsk, Zakhmatabad and Shurak areas is particularly deficient.

The fear of epidemics gives impetus both to this work and to the work
of propagating knowledge of hygiene and prophylactics. This propaganda forms the subject of constant articles in the Central Asian press. Departmental heads in Kirgizia and the Red Cross committees are criticized as playing a small part in propaganda activities. The form that these activities take was described to the Frunze conference of public health workers by Dr. Sarchenko, an epidemiologist. She said that in her raion (the Proletarsk raion of Frunze) a hygiene group of 60 members had been organized to propagate preventive measures. The group distributed pamphlets, gave talks and arranged vaccination. She suggested the creation of special epidemic centres with a qualified epidemiologist in every medical institution.

Dr. Samenchenco, at the same conference, said that the second polyclinic in Frunze had organized a session taken by academic specialists. He said that propaganda had produced greater respect for hygiene and sanitation in many factories.

Rural services

Medical assistance in rural areas is treated as a special problem, as the distances to be covered are often vast. Ambulance aircraft are much in use. In Tadzhikistan, for example, there are three air ambulance stations, at Stalinabad, Leninabad, and Kulyab. Before the war their main function was transporting urgent cases for operation, but now they take specialists to assist local doctors. The number of sorties in 1953 was 700 (as compared with 432 in 1940); 52 operations were performed and 300 patients visited by this service.

The number of beds in rural hospitals in Uzbekistan is now 9,000 - as compared with 142 in 1914. Detailed information is available for developments in the Khorezm oblast, which had one hospital of 50 beds, one clinic, and 6 doctors before the Revolution. In 1954 it had 177 hospitals, clinics, and institutes of preventive medicine with 1,305 beds, 162 doctors and 750 feldshers, nurses and midwives. Shortage of staff, however, causes many cases to be dealt with by not fully qualified personnel. At the Nizhne-Chirchik hospital, for example, there are eight qualified doctors, but they all hold several appointments and the clinical work is in the hands of feldshers.

Medical services have not yet been organized in every MTS and kolkhoz - some of whom are obliged to go eight to ten kilometres for medical assistance. Many kolkhozes, however, are provided with first-aid chests by the Ministry of Health. During the cotton harvest, the town and larger rural hospitals send doctors into the country to organize special medical services - kindergartens, creches and health propaganda units. 150 doctors were sent
Tadzhikistan suffers from the same shortage of personnel in rural areas. There are 32 doctors in Kurgan-Tyube, but not one in the surrounding raion or in two district hospitals; the same is the situation elsewhere, as for example, in the Isfara raion. In the Leninabad oblast 18 out of 27 district hospitals are without doctors. In the Koshteli, Rushan, Shugnan, and Tadzhikabad raions there is one doctor in each raion, whereas in the Ordzhonikidzeabad, Leninabad, and other oblast town raions there are from 15 to 20 doctors. In the Rakhatin raion, only 2 of the 8 medical centres have a full complement of qualified personnel - 35 members of the staff have left in the last two years.

82 per cent of Tadzhik doctors live in the towns, and of the lower-grade personnel - feldshers, orderlies, and midwives - only 20 per cent work in rural areas. The Stalin and Lenin kolkhozes of the Rakhatin raion have a medical staff entirely without qualifications. Specialists tend to stay in the towns and do not visit patients: Gussinov, the surgeon at the Sharkhar raion hospital never operates there, and obliges his patients to go to the oblast town. This is difficult for them as many kolkhozes do not provide transport for the sick.

Supplies are also a problem. Several drugs are not to be found in rural areas, and hospitals in the Kirovabad and Zakhmatabad raions lack fuel and food supplies.

Rural health services in Kirgizia were to be reorganized in 1954. Hospitals and clinics were to be opened in many MTS and sovkhozes. Midwifery services already exist there in considerable numbers, they are to be increased. Most of the newly qualified doctors from the Kirgiz Medical Institute are to be sent to the raion towns of the Osh, Dzhalal-Abad, Tien-Shan and Issyk-Kul oblasts.

The Kirgiz nomads had little chance of access to the prerevolutionary hospitals which were mostly in the towns. By 1940 50 hospitals had been built in rural areas. By 1946 there were 70 hospitals, 120 clinics, 330 medical assistance and midwifery centres, 45 dental clinics, and 20 X-ray units in the rural hinterland, with more than 450 doctors and 1,000 orderlies, midwives and nurses. By 1952, 121 of the 160 hospitals of Kirgizia were in the country. New hospitals were opened in Stalinskoye, Petrovka, Dzhety-Oguz and Ala-Beke in 1953; early in 1954 new clinics were under construction in Novo-Voznesenka and Dzhety-Oguz, and seven medical centres had been organized in the grazing lands.
The situation in the Tien-Shan oblast nevertheless presents features similar to those of the Tadzhik rural areas. Medical institutions lack necessary equipment and surgical instruments. A speaker at the Frunze conference, Comrade Dzhumaliev, said that only 60 of the 155 doctors prescribed were working in the oblast. The Ministry, however, often transferred men to other areas from the Tien-Shan oblast and had no new constructions under consideration there despite considerable allocations for this purpose.

Construction programme

It is indeed a universal complaint that building programmes are not being carried out. Only half the amount allotted for building new hospitals in rural Uzbekistan was used in 1953 - in the Kashka-Darya oblast only 18 per cent. In Tashkent projects are being completed extremely slowly. The Tadzhik Ministry of Health, despite the allotment of considerable funds, did not build a single new institution for many years. The polyclinic at Kurgan-Tyube is accommodated in a small eight-roomed house which also contains three clinic dispensaries and a branch of the department of forensic medicine. The medical school at Naryn has no permanent building. In 1954 something was done to remedy the situation. Twenty new hospitals were put under construction in the Stalinabad oblast alone; but the budget allocation is still not fully used.

In Kirgizia less than 33 per cent of the quarterly building quota was achieved in the first quarter of 1954. In September Sovetskaya Kirgiziya noted that the construction of clinics in the Sverdlov raion of Frunze and in Kadamzhai, and of hospitals at Przhevalsk and Talass was far behind schedule.

Health resorts and sanatoria

Resort treatment plays a particular part in Soviet medicine, and Central Asia contains spas known throughout the Union. Many of them are designed to meet the needs of tuberculosis patients, who are particularly numerous in the area.

The main Uzbek resort is at Chartak, 25 kilometres from Namangan; 950m. rubles were spent on it in 1953. The waters contain iodine, bromine, and chlorine salts, and strontium, lithium and iron in small quantities. They are used for the treatment of rheumatism, nervous, and intestinal diseases. 170 patients were treated in 1953, and more than 340 in the first eight months of 1954. Three new blocks are under construction. A highway links Chartak with Namangan, and the construction of an artificial lake and a large park will, it is hoped, make it the most
popular resort in Central Asia.

A hot spring 20 kilometres from Tashkent is used for the treatment of skin and intestinal diseases. The water, which reaches a temperature of 50° centigrade is bottled and aerated. A sanatorium is being built at the springs in the Chimion oilfield 30 kilometres from Fergana; such springs and the Ashi-Kul, Dam-Kul, Khodzhakef lakes have been prospected by a team under Professor Yevseyev. Mud from the lakes is utilized in treatment in Tashkent and Fergana hospitals. For children there are over 20 sanatoria and a mountain resort at Takhimarlan.

The principal resort in Tadzhikistan is Khodzha-Obi-Garm whose waters are effective in treating rheumatism, varicose veins, women's ailments, skin diseases, radikulitis, brucellosis, and the effects of wounds. The resort, which had 1,000 visitors in 1953, is being modernized by the construction of new blocks of accommodation, new baths, a "steam emanatorium" and new X-ray and physiotherapy units. There are also resorts at Ak-Syon and Shakhanistan.

In Kirgizia the south shore of Lake Issyk-Kul is rich in hot springs particularly on the northern slopes of the Terskei Alatau mountains, and there are health resorts at Dzhety-Oguz, Ak-Su, Koi-Sary, Cholpovala, and at Dzhalal-Abad, which together have over 2,000 visitors a year.

There have been complaints about the service provided by the resorts. One needs an hour to lunch at the Issyk-Kul resort - and the food is tasteless. The shop sells no cigarettes or confectionary. To get a hair cut, one has to go ten kilometres to Pokrovka. The electricity is only turned on for two or three hours a day; cultural activities are neglected. At Ak-Su and Koi-Sary no transport is provided; visitors have to hitch-hike to the sanatoria on lorries. About the medical service provided at the Kirgiz resorts, nothing has been reported.
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PUBLIC SERVICES

PUBLIC SERVICES

ELECTRIC POWER IN KAZAKHSTAN

Hydroelectric power-stations on the Irtysh river - Hydroelectric power-stations on the Alma-Atinka and Ulba rivers - Inter-kolkhoz power-stations - Difficulties in rural services - Town services - Conclusion.

Before the war, electricity in Kazakhstan was a phenomenon of town life and was provided by thermal power-stations. Post-war development has extended services to rural areas, especially since the beginning of the drive for grain in the new and virgin lands. This has involved the building of many new power-stations, the majority using water power. Such a development was envisaged before the war, and its realization is still in progress. Thermal power-stations exist at Karaganda, Temirtau, Petropavlovsk, Semipalatinsk, Balkhash, Alma-Ata, and in factories at Chimkent and Aktyubinsk. Smaller stations serve various industries and rural areas. These have been supplemented by the building of hydroelectric power-stations. The potential hydroelectric power of the republic has been estimated at more than 18m. kilowatts.

Hydroelectric power-stations on the Irtysh river

The hydroelectric projects on the river Irtysh have already been described in Vol.I, No.3 ("Harnessing the Irtysh") and Vol.II, No.1 ("The Bukhtarma Dam Project") of Central Asian Review. New information throws light on the construction of the Bukhtarma dam, which began in 1953. Work seems to be confined to the right bank of the river. A settlement of wood and brick houses - some concrete buildings are later to be built - has been laid out for the dam workers at Serebryanka. A school, a hospital, canteens, shops and a club serve the inhabitants. The Irtysh is bordered by high, inaccessible granite cliffs. A railway and a road (later to give access to the power-station) have been blasted through, necessitating the excavation of two millior cubic metres of rock and soil. The railway brings to the site tip-lorries, machine-tools, piping and tubing, bricks, cement, glass, and timber from the Osinskii lumber camps.

Work is now in progress on the excavation of the right bank.
foundation pit. The chief engineer, A. Bakulin, has said that it will be necessary to erect a rampart to protect the pit from the waters of the fast-flowing Irtysh while a concrete bed is laid for the dam. 500,000 cubic metres have been blasted to build this rampart, which was begun in September 1954. Two automatic concrete plants will fill the pit; power lines have been brought to the site to work them. When the new normal level of the river has been established, a dyke of wood, stone and earth will seal off much of the river bed.

Power from the hydroelectric station is to work the Altai mineral resources and to help the mechanization of agriculture in East-Kazakhstan.

The first project on the Irtysh to be completed was the power-station at Ust-Kamenogorsk, which began operation in 1953. The fall of water is now about 2,000 cubic metres per second whereas before it was 3,000-3,500 cubic metres per second. Consequently, the flooding of the Irtysh plain in spring and summer, on which the fertility of the plain depends, no longer takes place. This seems to have been overlooked in constructing the new station. Before 1953 the 500,000 hectares of land flooded annually by the Irtysh produced hay, in quantities estimated variously at 18-20 and 34 centners per hectare, which supplied kolkhozes of the Kirov, Predgornenskii and Tavricheskii raions of the East-Kazakhstan oblast and most kolkhozes of the Semipalatinsk, Pavlodar and Omsk oblasts.

In 1953 only half the usual amount of hay was obtained in this area and the damming of the river had adverse consequences as far as its confluence with the Ob. It is proposed to increase the fall of water at the power-station and to flood the plain artificially twice a year in future. This seems as yet impossible because the working of the plant involves containing the Irtysh spring flood-waters.

The station is in some cases not fulfilling its intended purpose. An article in Kazakhstanskaya Pravda describes the village of Biryukovka, four kilometres from Ust-Kamenogorsk, as being without light or radio. The inhabitants at their own cost and by their own labours laid power lines. These have only to be switched to a transformer 400 metres from the village, but this has not yet been done.

Hydroelectric stations on the Alma-Atinka and Ulba rivers

Alma-Ata is supplied with electricity by the hydroelectric scheme on the river Alma-Atinka, of which the first plant - Ozernaya No.1 - has been completed. The river feeds a large lake in the Zailiiskii Alatau mountains, and has a fall of 600-700 metres in three or four kilometres;
plans were made to use it for electric power during the war, and surveys were carried out as early as 1943-4. The first power-station was built where the river leaves the lake. Construction of the dam and plant took over three years. The work was difficult, not only had it to be done at an altitude of 2,600 metres, but pipe-lines had to be laid through the mountains to connect several plants in a grid, high tension lines had to be laid to link the plant with Alma-Ata, and twenty-four kilometres of roads had to be made. 2,000 tons of piping was laid in five months instead of in the projected ten.

The water feeding Ozernaya No.1 passes through a tunnel to Ozernaya No.2, now under construction, and then to other plants; there are to be nine, all automatically operated, when the project is fulfilled. Ozernaya No.1 was finished in 1953. It has the largest turbine in the Alma-Atinka project, and has doubled the output of hydroelectricity in Kazakhstan.

A similar "cascade" series of power-stations was completed in 1954 on the Ulba river in the Altai to serve Leninogorsk (formerly Ridder). There are three plants; Ishimskaya, Kharezovskaya and Ulba, all in the East-Kazakhstan oblast. Remote control was first installed at Ishimskaya; all three plants are now controlled from a single panel at the Ulba station. The grid has a vital importance for the Altai non-ferrous metal works.

Inter-kolkhoz power-stations

In the rural areas of Kazakhstan, small 50-100 kilowatt power-stations, serving one or two kolkhozes, are most commonly found. Experience has shown, however, the wisdom of creating hydroelectric plants of medium size to serve several kolkhozes because the potential power of an average small river is between 1,000 and 1,500 kilowatts. The cost per kilowatt of a small plant is double that of a larger station. Moreover, manual labour has to be used in construction as there is insufficient power for complete mechanization; and labourers are not always to be found, particularly in the summer. Finally, maintenance of a small station is as costly as that of a much larger one. The solution proposed therefore is to build medium-sized inter-kolkhoz plants. The cost of a 1,200-3,000 kilowatt plant should be not more than 3-4,000 rubles per kilowatt, while the cost of a 100 kilowatt plant, such as that at Ak-Su, may reach 6,000 rubles per kilowatt.

In summer 1953 the Ukrainian branch of Gidroselelektro (Rural Hydro-electricity authority) completed a survey for the erection of five inter-kolkhoz power-stations, which are to have capacities varying from 1,200
to 3,000 kilowatts. The largest - Antonovskii on the Lepsa river - will supply kolkhozes of the Sarkand, Andreyevskii and Ak-Su raions of the Taldy-Kurgan oblast. The others - Abakumovskii on the river Ak-Su, Uspenskii on the Orta-Tentek, Budennovskii on the Kok-Su and Nizhne-Tenteiskii (to be operated by remote control) - will serve agriculture in the Ala-Kul, Dzerzhinskii and Kapalskii raions of the same oblast. One inter-kolkhoz station has already been completed on the river Tentek; it was built by the Molotov, Koigeldy, and Thirtieth Anniversary of the Kazakh SSR kolkhozes of the Kokpetinskii raion, Semipalatinsk oblast.

On the river Sharyn, eighteen kilometres from Zhalanash, the Ak-Togai hydroelectric plant has been under construction since October 1953. It will supply six kolkhozes of the Kegen raion of the Alma-Ata oblast. 150,000 cubic metres of soil have been excavated and 2,000 cubic metres of concrete will be needed for the dam. Power is provided by a mobile diesel plant. Houses, a canteen, medical centre, shop, library and public baths have been built, and a thirteen-kilometre road has been made linking the site with the main road.

Meshke (Dzhambul oblast) has a hydroelectric plant with a capacity of 520 kilowatts, serving seven kolkhozes. It began operation in 1954.

Within the next few years the Semirechye grid is to bring electricity to 65 per cent of the kolkhozes of the Taldy-Kurgan oblast. Plans have been drawn up for two hydroelectric plants with a combined capacity of 4,000 kilowatts on the river Terekhta in the recently reclaimed areas of the oblast. The Ukrainian branch of Gidroselelektro is planning three more stations with six sub-stations and a total capacity of 15,000 kilowatts to be comprehended by the Semirechye grid.

Difficulties in rural services

In September 1953 there were 1,560 power-stations, thermal or hydroelectric, in the rural areas of Kazakhstan and 61 were under construction. 11,000 engines in kolkhozes, sovkhozes, MTS and MZhS, were working on electricity. Nevertheless, forty-nine kolkhozes of a scheduled 114 for 1953 remained without electricity. Even small power-stations take three to four years to build, and many start work before they are completed; these are soon in need of repairs. The losses of the South-Kazakhstan branch of the Kazselelektro (Kazakh Rural Electricity authority) were more than 1m. rubles in the last three years. 1.5m. rubles' worth of building materials were left to deterioration and theft in the open air. In spring 1954, some 200 rural power-stations were idle. Many suspend activities for lack of fuel; such are the Novyi Put, Krasnoye Znamya, and Twelfth October Anniversary kolkhoz stations of the Kokchetav oblast. In
the same oblast shortage of engineers stops work.

Some plants when built are not fully utilized. Electricity supplies light but not power to the Abai kolkhoz (Karatal raion, Taldy-Kurgan oblast). Eight engines have been in store unused for three years. The First of May kolkhoz (Taldy-Kurgan raion) built a 125 kilowatt hydroelectric station at a cost of 500,000 rubles but only 20 kilowatts have been used for the last two years and only a third of the village has electricity. The Sarkand raion plant supplies three kolkhozes, yet only half of the plant's power is utilized at present; the same is true for other stations in the raion - such as that at Cherkasskaya. At Shet-Tentek (Dzerzhinskii raion) a 106 kilowatt plant was opened late in 1953 to supply two kolkhozes, but they only use 20 per cent of its power and the employment of a staff of nineteen gives a high cost to the kilowatt-hour. The Taldy-Kurgan oblast as a whole has 29 power-stations but only half of the capacity is used.

The power-station at the Karl Marx kolkhoz (Duvalinskii raion, Dzhambul oblast) was opened in 1952. But power is hardly used, and only half the kolkhoz is lit by electricity. The turbine often stops; some of the lines are iron wire which wastes much power.

Town services

Service is no less a source of complaint in the towns. The Ala-Kul fish-canning factory has had its own plant for the last three years. But the plant is not in operation; the processes are applied manually and the workers' homes lit by paraffin lamps. The Ministry of Fisheries pleads in answer to complaints that electric cabling and other materials are unobtainable.

The Tekeli power-station has not had a day without a break-down in the supply of light. Shops and garages in the town have electricity, but the clinic, the pharmacy and private houses are without it. In Akmolinsk not only is electricity not available for domestic consumption, but paraffin lamps are unobtainable. Electricity is not available for domestic use in many streets and houses of Karaganda. Readers' letters in Kazakhstanskaya Pravda blame "red tape" and bureaucracy for the deficient service.

Most surprising are the complaints from Alma-Ata, the capital, supplied by the recently completed station Ozernaya No.1. Many districts - particularly the suburbs - lack electricity. Citizens are advised to lay their own lines to the mains; then they will be given the power. The reporter accuses the Energosbyt (Energy Supply authority)
"Apathy", however, may not be an altogether justified charge. It seems likely that both in the country and in the towns there is a serious shortage of cable and other electrical equipment which prevents the full utilization of available power resources. Such cable as there is is given by priority to industry, and to the heavier industrial undertakings. Even the new lands of Kazakhstan - for whose mechanized cultivation some form of power is essential - take second place. Cable was, until the Revolution, imported from abroad into Russia or manufactured in five German-owned factories. The Soviet Encyclopaedia states that in the year 1950 the USSR produced "several tens of times" the 1913 quantity of cable. On consideration of the increase in demand for electric cable in the USSR between 1913 and 1950 this statement seems rather mild, especially when taking into account the enormous electrification schemes. The output of electricity in Kazakhstan in 1913 was 1,300,000 kilowatt-hours; in 1940, 633m. kilowatt-hours. The present Five-Year Plan calls for 1,810m. kilowatt-hours in 1955. In the light of this, the difficulties in the electrification of Kazakhstan may not be entirely attributable to organizational defects.

Sources


1953 Expeditions in Kirgizia

The following is a slightly abridged translation of an article by A.P. Okladnikov published in Vestnik Akademii Nauk SSSR of September 1954.


In 1953 an archaeological and ethnographic expedition in the Kirgiz SSR resumed work begun by archaeological expeditions of the Institute of the History of Material Culture of the Academy of Sciences of the USSR, and the Institute of Language, Literature and History of the Kirgiz subsidiary of the Academy. The expedition consisted of five archaeological teams: the first studying monuments of primitive communal social structure; the second excavating sites within the confines of mediaeval Balasagun, previously investigated by A.N. Bershtam's expedition; the third excavating mediaeval town-type settlements in southern Kirgizia at Uzgen; the fourth investigating monuments of the nomad population in the Tien-Shan; and lastly a special team investigated the remains of eleventh, twelfth, and thirteenth-century settlements near Sretenka in the Stalin raion of the Frunze oblast. Two ethnography, and one anthropology team were also included in the expedition. The new investigations have clearly shown the need to establish permanent centres of investigation on a much wider scale than before.

I. Historical Monuments

Eleventh to thirteenth-century remains at Sretenka

Among the more important archaeological discoveries of the investigation, mention is especially due to the remarkable settlement
near the village of Sretenka, where the remains of three buildings were investigated. These buildings are of the eleventh to thirteenth centuries A.D., and were inhabited for a considerable time, being at least twice rebuilt. (Fig.1.) Building No.1 in the second period of its habitation (twelfth to thirteenth centuries) was a structure of considerable dimensions, divided into three parallel rows of rooms running from south to north. In some of the rooms a facing of multicoloured tiles still lies intact on the floor in richness of ornament not inferior to any of the best examples of this type of floor-covering in Central Asia. Apart from the floor, a distinguishing feature of the building is the remains of an intricate terra-cotta facing on architectural details, executed with exceptional delicacy and mastery. The ornament on the terra-cotta slabs is both geometric and naturalistic, the geometric element being represented by triangles in relief, sunken circles, rhombi, polyhedrons of many small fragments of tile, and crescents; the naturalistic element principally by stylized foliage with fantastic tendrils along the edges.

Within the building were found two heavy cylinders about forty centimetres high, cast in gilt bronze (Fig.2). Both cylinders are unique artefacts in mediaeval Kirgizia. They are closely covered with very delicate ornament including decorated bands of engraved inscriptions in Arabic. The projecting figures of lions, as if were walking round the cylinder, are a completely unusual feature. In their technique, these sculptural representations recall the best examples of the casting work of eleventh to thirteenth-century Central Asia, and are masterpieces of their kind.

In the same place were found examples of glass work, bronze medallions, ornaments and discs with lettering in the form of Arabic ligature inscriptions, which had obviously served as ornamentation on some architectural details. In building No.1 were also discovered numerous iron artefacts, including an iron vessel.

No less remarkable are the objects found in building No.2; a cast copper medallion with representations of animals symbolizing the twelve-year calendar cycle, ornamentation of white Eastern Turkestan nephrite, and fragments of the head of a Chinese dragon modelled in clay - an architectural detail probably used to finish the roof-ridge. Roofing
tiles were also found here, typically Chinese in technique and shape. This all justifies dating the latter period of the settlement’s existence to a time when Kidani, or Kara-Kitai, immigrants from distant North China settled in Semirechye bringing with them their native Chinese culture. Obviously there was some kind of Kara-Kitai settlement here at that time - possibly the headquarters of a feudal ruler, if not of their supreme ruler - Gurkhan.

The Balasagun temple

The excavations at Balasagun have uncovered a bright page in the history of Semirechye, when pioneers of agricultural colonization had just arrived there from Sogdiana. The excavations have also thrown light on the ensuing events in the life of eleventh-century Balasagun, when it was taken by the nomads. In 1953, excellently preserved remains were discovered here of a Buddhist temple of the eighth to ninth centuries A.D., richly ornamented with wall-painting and sculpture. The architectural lines of the temple, the peculiarities of the style of its paintings and sculpture approximate it both to the analogous monuments of Sogdiana, in the first instance with the temples of ancient Fyandzhikent, and to the cave temples of Eastern Turkestan. The excavations of the Balasagun temple have afforded abundant material for the elucidation of the economy of that time, which was primarily agricultural.

Agriculture - the basic occupation of the builders of the temple, the Sogdians of the local Buddhist community - is clearly represented by the heavy mill-stones discovered in the building and also used in its construction. These, to judge by their dimensions, must have been set in motion by water power or animal traction. Still more interesting is the intact wooden plough, the most ancient implement of this type known in Central Asia, which was found set in an angle of a wall to strengthen it.

The ancient city of Uzgen

Much that is new in the historical topography of Uzgen and the adjacent area has been contributed by the team working there. It has been disclosed that the city occupied its maximum area in the eleventh century A.D. when it was the capital of all Maverannakhr (Transoxania) A series of settlements and strongholds has been investigated which reveal a picture of life in this region from the early centuries A.D. The distribution of settlements is connected with the ancient aryk network. Mediaeval Uzgen stood at the junction of four roads: the northern road led to the Chu Valley, the north-western went in the
direction of the modern Dzhalal-Abad, and further along the Kara-Darya, and the south-eastern connected Uzgen with areas in the direction of Kashgar.

Turkic nomadic invaders

No less expressive is the material afforded by the excavations on the characteristics of the way of life and culture of the nomad Turkic peoples who a century later destroyed the temple (Ed: It is not clear whether this refers to the Balasagun temple described above or to another), smashed the images of the gods, looted the sacred vessels, and then settled within its walls with hearths for their cauldrons and barrel-shaped pits to keep their meat in. It is also clearly possible to establish how, later, in the second half of the ninth and in the tenth century, the nomad Turkic peoples gradually settled on the land and became tillers of the soil.

II Stone Age Monuments

The study of monuments of the epoch of primitive communal social structure has done much to fill gaps in the study of Kirgizia's archaeology and history. To this end it was first of all necessary to begin systematic searches for monuments of the more distant past of Kirgizia, for traces of human activity in the early stages of primitive communal structure in the Stone Age.

Until now, apart from doubtful isolated finds, not one Stone Age or even Early Bronze Age monument was known in Kirgizia, that is, of the period when stone-working technique was still in its early stages. As a result of especially careful searches in the Chu Valley, by Lake Issyk-Kul, and in the Tien-Shan, such monuments were finally discovered in 1953.

Chu Valley and Lake Issyk-Kul

The search for traces of Paleolithic and Neolithic man was begun by expeditions in the nearer environs of Frunze and Tokmak, where objects were soon discovered testifying to the existence of an ancient culture in the Chu Valley, the exponents of which made wide use of stone in fashioning their working tools. Such objects were found, for instance, on the high terrace-like slopes along the Alamedin and Shamsi rivers, where stone chips and pebbles were found worked by the usual Stone Age methods. Traces of human activity of the same level of culture were encountered near the Boam defile, on a high and ancient...
terrace above the river Chu on its left bank, and also farther up this river near Rybachye.

In the investigations of the environs of Tokmak, near which lie the ruins of Balasagun (near Staraya Pokrovka), stone chips were found in the same stratum as crude pottery. The same picture was presented by investigations on the northern shore of Lake Issyk-Kul, where the cultural stratum of an ancient village was found in a ravine near Cholpon-Ata, consisting of ashes mingled with bones of animals, fragments of clay vessels of primitive make and crude chippings. These finds can be related to the Neolithic or Early Bronze Age.

**Tien-Shan mountains**

Analogous monuments were discovered in the Tien-Shan at a height of 2,400 to 2,500 metres above sea-level. The most interesting and expressive of them were found on the ancient terraces of the Naryn valley. In what appears to be traces of Neolithic settlements a significant amount of worked stone was collected, including hammered pebbles, small chippings and slabs recalling artefacts found in the Chu Valley. These finds were made six kilometres above Naryn on the left bank of the river of the same name, and similar finds were made on both banks of the river at Naryn itself.

On a terrace-like slope eight metres high, at the confluence of the river Sharktma with the river Naryn, near the town of Naryn, a well-expressed cultural stratum was found in a quarry at a depth of sixty to eighty centimetres. Animal bones lay together with pebbles chipped apart by human hands, pieces of charcoal, fragments of crude pottery and a well-polished disc-like stone artefact which probably served as a sun-dial.

The settlements on the river Sharktma, like the finds at Staraya Pokrovka near Balasagun, and at Cholpon-Ata, most probably relate to the end of the third and the beginning of the second millenium B.C. — the beginning of the Early Bronze Age in Kirgizia. Cultural remains very close to these in character have also been found in excavating a series of caves in the Tien-Shan, including the caves on the famous mountain Ala-Myshik and the Teke-Sekirik grotto near Naryn.

The special expedition to the river Sarydzhaz, famous in literature for its caves, undertaken by Kh. Alnysbayev, one of the members of the expedition in the company of V.I. Ratsek, the famous mountaineer and explorer of the mountains of Central Asia, brought very interesting results. The Ala-Chunkar cave on the river Sarydzhaz
proved to have served immemorially as a place of refuge for ancient man. It lies at a height of about 3,500 metres above sea level and is 45 metres long, 1.5 to 7.5 metres wide, while the vault of the cave goes from 12 metres near the entrance to 1.5 metres at the back. This is so far the only cave in Kirgizia where rock drawings are preserved of goats, bulls, snakes and human figures. These drawings are executed in red.

During excavation in the cave, hammered pebbles were found and chippings with distinctly visible signs of workmanship. It is thus for the first time established that man lived in the Tien-Shan heights at a very remote period indeed.

Still more interesting and unexpected was the discovery in the Tien-Shan of traces of an ancient culture of a stature considerably surpassing that displayed by all the finds mentioned above. While exploring the valley of the little mountain stream On-Archa, a tributary of the Naryn, the party found its attention attracted by an ancient terrace of pebbles and boulders rising more than 30 to 40 metres above the right bank of the river bed and clearly not corresponding to the natural contours of this area. In a deep hollow, excavated in the construction of the Frunze-Naryn road, a heavy rounded stone lay in an undisturbed state among large pebbles, in a position about 25 metres lower than the upper part of the terrace. One projecting edge had been worked with a chopping action and made into a long blade in the shape of a slightly bulging crescent. A second edge remained untouched and could have served as a sort of hand-grip. This is undoubtedly a crude chopping implement similar to the most ancient Stone Age tools of the hand-chopper type. It is distinguished, however, from the usual hand-choppers in Europe and elsewhere by the formation of its working end, which has the shape not of a prolonged point, but of a broad projecting blade. Artefacts of this kind made of whole pebbles, and at first glance recalling archaic nuclei, are well known as "pebble-tools".

Together with the artefact described above, other stones worked by man were found on the On-Archa in the same shale deposits of the ancient terrace, including a small scraper-like tool of a form no less characteristically archaic. It took the shape of a primitive, scraper-like instrument made from a flat pebble split apart by a strong cross blow at the sides. The roughly crescent-shaped projecting edge of the tool, formed as a result of this operation, had then been worked with crude but quite accurate chipping tools.

Scraper-like instruments of this kind, made from whole pebbles split by one cross-blow are widely distributed together with "pebble-tools" in southern and south-eastern Asia, where they are characteristic
of, for example, the Lower Old Stone Age, pre-Schellian and Schellian remains.

The ancient - that is at least Lower Old Stone Age - date of the find on the On-Archa is attested not only by the technique of manufacture and form of the tools found, but also by the geological conditions of their provenance. It is particularly noteworthy that this precious find was made in the very heart of the "Mountains of Heaven" at a height of about 2,500 metres above sea level.

These finds represent the most ancient traces of man not only in Kirgizia but in all Central Asia - the working tools of its first inhabitants dating from the infancy of mankind. It can therefore be stated with confidence that further investigations in search of Paleolithic and Neolithic remains in Kirgizia will afford results important for the reconstruction of the history of the settlements by man of Central Asia. Valuable results may also be expected from the study of later stages of Kirgizia's past.
HIGHER EDUCATION IN UZBEKISTAN

System of higher education - Qualifications for entrance - Number of institutions - Universities - Technical VUZ - Tekhnikums - Teacher-training establishments - Language of instruction - Political higher education.

The educational system of Uzbekistan is administered in accordance with the regulations and statutes pertaining throughout the Soviet Union. Readers are referred to "Primary and Secondary Education in Kazakhstan" in Central Asian Review Vol.II, No.2 for a description of many features and a diagram of the whole Soviet system of education.

The system of higher education

In the Soviet Union higher education is given by institutions of two types. On the first level there are the universities and specialized institutes of university standard; these include technical and medical institutes, academies of the arts, and secondary teacher-training colleges. All these are known as VUZ - i.e. higher educational establishments. The second level comprises similar establishments with lesser standards for the training of mechanics, agricultural workers, pharmacists and dispensers, and teachers for primary schools and kindergartens. The Soviet term for these is "middle-grade specialized educational establishments", but in practice they are often said to give higher education. Collectively they are referred to as tekhnikums, whether in fact they give technical education or not.

Of these two types of institution, some are under all-Union and others, including all teacher-training establishments, under republican control. This is an important distinction. The head of every establishment and his deputies and the dean of every faculty are appointed by the controlling ministry or authority, whether all-Union or republican; other appointments to the staff, or to the status of
aspirant (research student), and dismissals are confirmed by it. In certain cases in Uzbekistan, control is exercised not only from Moscow but from Leningrad, the Crimea, Krasnodar, and other places outside the Uzbek republic. This is criticized as leading to much duplication of function and dissipation of resources (1). Even within the republic there is the same complication. At the republican conference of educationists held in Tashkent in August 1954 there were complaints of the lack of cooperation on the part of ministry officials, particularly in their dealings with the subordinated ministry in the Kara-Kalpak ASSR (2). It was admitted that a reorganization and an attack on bureaucratic methods were necessary, but apparently only a tightening up of the existing system of controls is possible.

Qualifications for entrance

The standard of higher education is necessarily dependent on the standard of secondary education, insofar as the latter is preparatory to it. The present Five-Year Plan (1952-55) calls for ten-year education in all centres of population by 1955, but even seven-year education is not yet universal.

Entrance to a VUZ is to be obtained by those with a ten-year education or those who have completed a course in a tekhnikum and three years work in production. During this latter period they may enter the postal tuition department of a VUZ. For entrance to a tekhnikum, in general a seven-year education, or a four-year education with a four-year period in a part-time factory school is necessary.

Unless they have won special prizes at their former educational establishment, candidates for a VUZ or tekhnikum must sit for entrance examinations, and have only one opportunity to do so. The director of the establishment may fill vacancies without examination if candidates have passed similar examinations elsewhere, and he may have even greater freedom of choice. In 1953 the practice of the Kara-Kalpak Teacher-Training Institute of allowing some advantage to candidates who made early applications was condemned. This establishment is under local control. Attempts are to be made in all Uzbek VUZ to organize the entrance examinations for the year 1954-55 competitively - as they should already be according to the statutes.

The reorganization of education under the present Five-Year Plan brought a rise in numbers in the year 1953-54 of seven per cent in VUZ and nine per cent in tekhnikums on the previous year (3). But the number of those taking full ten-year education rose by forty-three per cent. The complaint is made that while numbers rise, standards do not,
chiefly because though the schools are transformed, the teachers remain
the same. The republican educationist's conference was particularly
concerned at the wastage of pupils, especially among girls. In the year
1953-54 two-thirds of the Uzbek girls attending school did not finish
their courses; many left to marry. In one school for many years no
Uzbek girl has completed the tenth class. Coeducation is to be
introduced in 1954-55 with special efforts to interest both sexes in
study and intellectual pursuits.

The number of institutions

There are discrepancies in accounts of the number of higher
educational institutions. Sovetskii Uzbekistan (by Kh. Abdullayev,
Moscow, 1948) gives twenty-nine VUZ and ninety-six tekhnikums for 1940,
and thirty-seven VUZ for 1948. Uzbekistan (Tashkent, 1950) a
publication of the Uzbek Academy of Sciences, gives thirty-six VUZ and
ninety-six tekhnikums for 1948. The Soviet Encyclopaedia gives thirty-
five VUZ for the beginning of the educational year 1949-50. The
official hand-book for entrants in 1953 lists individually twenty-nine
VUZ and ninety-two tekhnikums while an article in Pravda Vostoka
heralding the beginning of the year 1954-55 lists thirty-six VUZ and
ninety-six tekhnikums. One or two of the twenty-nine VUZ listed in the
entrants hand-book have been founded since the war. It is possible
that some institutes of the Academy of Sciences are included in the
totals of thirty-five, thirty-six, and thirty-seven.

Numbers of students vary correspondingly. The article mentioned
above gives the total number of students at both levels in the year
1954-55 as over 80,000. The figure for 1940 is 32,500 and for 1948,
56,000.

The universities

Of the two Uzbek universities, the Central Asian State University
in Tashkent has an outlook at once wider and attracting more criticism
than the Alisher Navoi Uzbek State University at Samarkand. It has
eight faculties, whereas the university at Samarkand has five. The
criticism it attracts is mainly in respect of its wider interests: the
faculty of philology works on problems without meaning for the Uzbek
republic; there are too few applicants for entry to the oriental
faculty (4). It is noteworthy that the syllabus does not specify the
native languages for philological study. The rector of the university,
Tadzhmukhamed (Taj Muhammad) Sarymsakov, described as a brilliant young
mathematician, has acknowledged elements of "scholasticism, talmudism,
and pedantry" in its instruction, and deplored its failure to attract
Uzbeks, and particularly Uzbek women.

The Alisher Navoi University is less frequently mentioned, and is criticized principally on the grounds that it devotes too little attention to research. It gives correspondence courses. Like other VUZ, it has difficulty in enrolling Uzbek women.

The technical VUZ

Apart from the two universities, the VUZ fall into two categories: those giving technical instruction, and the teacher-training institutes, which are described below. Of the VUZ other than teacher-training colleges two are in Samarkand, and all the rest in Tashkent, which has an educational importance unparalleled in Central Asia and even beyond. For instance, in Tashkent is the only institute for training pharmacists in the whole of Central Asia and Western Siberia. The Tashkent Institute of Finance and Economics is the main such institution in Central Asia, and attracts students from Kazakhstan and Tadzhikistan as well as Uzbeks and Russians. There are institutes for the study of agriculture, textiles, law, trade, railway construction, irrigation, and the mechanization of agriculture. Most of them have been in existence for fifteen to twenty years and have grown steadily. An example is the Textile Institute, which since 1948 has added three new faculties, the third in 1953 being for the study of cotton-cleaning processes.

Criticism is mainly directed against the failure of the VUZ to maintain academic standards. Of 414 instructors of the "social sciences" 230 are without qualifications (5). The problem of postgraduate work - the aspirantura - is constantly discussed. Aspirants do not receive proper attention from their supervisors, and many have their theses rejected. Certain supervisors have not had a single success for a considerable time. Particularly few are the successes among Uzbeks, and especially Uzbek women. Only the urban population is being attracted to higher education; the rural areas are neglected.

All these institutions are under all-Union control.

The tekhnikums

Of the seventy-one tekhnikums in Uzbekistan, eighteen are under all-Union control; these are all concerned with the more technical branches of industry - railways, chemical and electrical engineering, oil, food-processing and hydrology. Fifteen of the rest are for medical attendants and midwives, nine for music and the arts
(preparatory for the State Conservatoire), eighteen for agriculture, and
the remainder for local and light industries.

No criticism is forthcoming of the technical aspect of their
activities; but many of their students on attempting entrance to the
correspondence or ordinary departments of the VUZ fall down on the
Russian language paper. An article in Pravda Vostoka in June 1954
complained of their general low level of literacy, and particularly of
the ignorance of Russian. Dozens of mistakes appeared in a one and a
half page essay. A teacher in a factory school, obtained the mark of 4
(unsatisfactory). It is admitted that the root of the problem lies in
the teacher-training colleges. Both types are controlled and financed by
the Uzbek Ministry of Education and have been deeply affected by
reorganization consequent on the Nineteenth Party Congress.

Teacher-training establishments

It is necessary to explain that there is a difference of function
between "teacher-training" and "pedagogic" establishments. A teacher­
training institute (uchitelskii institut) trains teachers for the V to
VII classes of seven-year schools and, where required, for the upper
classes of ten-year schools. A pedagogic institute (pedagogicheskii
institut) trains all types of teacher, the higher training department
being incorporated or, as at Nukus, attached. A pedagogic school
(pedagogicheskoe uchilishche) on the other hand, trains teachers for
primary schools (I - IV classes); this is a middle-grade specialized
educational establishment - i.e. a tekhnikum. For entrance the usual
qualifications are required.

By 1953 the change-over to ten-year education had already caused the
expansion of five institutes previously training teachers for classes V
to VII - those in Samarkand, Andizhan, Kokand, Namangan, and Karshi; and
a new institute is to be built in Termez. Up to 1952 there were eight
such institutes in Uzbekistan; now there are fourteen. The speech of the
President at the Third Session of the Supreme Soviet of the republic
announcing these results shows that this expansion implies facilities for
training teachers of ten-year schools. There are twenty-one schools
(uchilishche) which under present conditions supply many of the recruits
to the institutes. Great use is made of postal courses offered by nearly
all teacher-training establishments. Two institutes and one school in
Samarkand offer evening tuition, while in Tashkent there is an institute
purely for evening classes.

The institutes are divided into faculties or departments, generally
of language and history, and of physics and mathematics. In some of the
larger institutes there are separate departments of Russian and Uzbek, of natural sciences, geography and chemistry, and of teaching method. In Tashkent there is a special institute for the training of English, French, and German teachers, which has an aspirantura, as has the Nizami Teachers' Training Institute in Tashkent. This, the largest such establishment in Uzbekistan, is usually mentioned in the same breath as the universities, and a picture of its grandiose entrance facade illustrates most works on the subject of higher education in the Soviet Union. It is its practice to submit post-graduate theses to Moscow - a practice said by a senior member of the evening teacher-training institute in July 1954 to lead to the neglect of the aspirants, and to be the cause of the many cases of failure (6). He was discussing the problem of teaching Russian, and deploiring the lack of theoretical study of method, and especially of a comparative grammar for the benefit of those learning Uzbek and Russian simultaneously.

Language of instruction

The language problem is necessarily most acute in education in Uzbekistan. Knowledge of Russian is required for entry to institutions of both levels. The examination for entrance to VUZ is conducted in writing in Russian though viva voce only in other subjects, while entrants to tekhnikums do a Russian dictation. Entrants to VUZ coming from tekhnikums are said to gain especially poor marks.

The language of instruction is always specified in the prospectus. It is Russian alone in the more specialized establishments: the State Conservatoire, the flour-milling, industrial, railway construction, building, topographical, hydrometeorological tekhnikums. All these are in Tashkent. Nearly everywhere else both Russian and Uzbek are used, sometimes varying according to the nationality of the instructors. Russian is not always taught in Russian; the Fergana institute carries on all instruction in Uzbek, and yet trains teachers of Russian for Russian schools. Pupils are always trained with particular national groups in view; teachers of Russian are trained to teach either Russian or Uzbek schools and vice versa.

There are other languages of instruction. The school training primary and kindergarten teachers in Khodzheili uses Kara-Kalpak, Kazakh, Uzbek and Russian. The Chimbai school for training primary teachers and senior Pioneer leaders uses Kara-Kalpak, Kazakh, and Russian. Some institutes use Turkmen and Tadzhik.

The proportion of Russian to indigenous inhabitants receiving higher education is nowhere directly mentioned. According to the 1939
census, Russians formed 11.6 per cent of the population of Uzbekistan and two-thirds lived in the cities, most of them in the Tashkent oblast where only 42.3 per cent of the inhabitants are Uzbeks. On the other hand in the educational year 1953-54 out of 187 finishing the course given by the republican Party school — all of whom would have received or be receiving higher education — seventy per cent were Uzbeks or of other native origin. This figure may require qualification. Many students have already received political education and Russians may not need the services of the Party school.

Political education

Political education is given in all higher educational institutions and is expected to help the work of raising standards. There are also eleven "evening universities of Marxism-Leninism" in the principal cities with off-shoots (filial) in large factories and in trade-union branches, including those in institutions of learning. Instruction is often in Uzbek (7). Attendance is voluntary, but there are criticisms of compulsory enrolment to boost numbers (8). Communists who had already taken courses at their VUZ are among those included, and no attempt is made to place the pupils in classes of their educational standard. Instruction is often given by the question and answer method. To improve poor attendance figures, instructors are to reorganize their groups and encourage independent work on the fundamentals of Marxism, to assist which the works of Lenin and Stalin have been translated into Uzbek and the first volume of Das Kapital is in the process of translation.

Conclusions

Higher standards and a higher proportion of Uzbeks in the universities and institutes can only be achieved by higher standards and more of the native population in schools; the expansion of the schools demands higher standards in the institutes training the teachers. The initial advance in education in Uzbekistan was made by an influx of Russian scholars, scientists, and educationists. But the ultimate leadership in education was established locally with the founding in 1943 of the Uzbek Academy of Sciences. Sharp and frequent criticism of the Academy from inside and outside the republic shows that it is finding difficulty in maintaining its role. Yet there is equally sharp criticism of institutions with all-Union connection from within Uzbekistan. It seems that higher and technical education is suffering from the shortcomings of the primary and secondary schools, which are due largely to the very great increase in the numbers of school children.
Notes

(1) Speech of Comrade Mukhitchinov at the Twelfth Uzbek Party Congress held in February, 1954.

(2) Reported in Pravda Vostoka of 22.8.54.

(3) " " " 3.2.54.

(4) Article by R. Bigayev, head of the department of Russian language in the Tashkent Evening Teacher-Training Institute, in Pravda Vostoka 10.7.54.

(5) G. Sultanov, head of the science and culture department of the Central Committee of the Uzbekistan Communist Party, writing in Pravda Vostoka of 1.8.54.

(6) Cf. (4) above.

(7) Article in Pravda Vostoka of 23.8.54 on the beginning of the educational year.

(8) Reported in Pravda Vostoka of 7.2.54.

Sources

1. Spravochnik dlya postupayushchikh v vysshiye i sredniye spetsialnyye uchebnye zavedeniya UzSSR v 1953 g. Tashkent, 1953.


5. Soviet Encyclopaedia, s.v. VUZ.

The following is a continuation of the analysis of Ocherki Istoriiz
Izucheniya Islama v SSSR by N.A. Smirnov, the first part of which
appeared in the last issue of this Review. The final and concluding
part of the analysis together with a bibliography will appear in the
next issue of the Review. The analysis is designed to indicate the
general scope of the book; it is not in any sense a critical review,
and all the opinions expressed are those either of the author or of
the writers and others whom he quotes.

Chapter IV

Islamic Studies 1918 – 1934

Attitude of the Soviet regime to Islam

From 1918 onwards the principal representatives of Islam and its sects
encouraged and supported the counter-revolutionary movement against the
dictatorship of the proletariat, one of the planks in their platform being
"the libellous accusation that the Soviet regime aimed at suppressing
religion."

In fact, the Soviet attitude towards religion was based on the Marxist
principle of freedom of conscience, and in the proclamation of 24th November
1917, addressed to all the Muslim peoples of Russia, "whose mosques and
shrines have been destroyed and whose beliefs and customs have been trampled
on by the Tsars and taskmasters of Russia", these were informed that thence­
forward their "beliefs and customs, national and cultural institutions are
declared free and inviolable".

One of the first practical steps taken by the Soviet regime with regard
to the Muslim religion was to comply with the request of the regional Muslim
congress of the Petrograd National District that the Holy Koran of Osman,
which at the time of the annexation of Central Asia had been removed from a
mosque of Samarkand to the State Public Library, should be handed over to them.
The tasks of the Party in respect of Islam and the people of Muslim countries were defined by Lenin in 1920 as (a) support of the "bourgeois-democratic movement" in backward countries, (b) the fight against religious and other reactionary and mediaeval elements, and (c) opposition to pan-Islam and similar movements which were endeavouring to identify the movement for liberation from European and American imperialism with the strengthening of the position of the khans, landowners and mullas. But both Lenin and Stalin emphasized the need for care not to offend the deep seated sensitivities of the Muslim peasantry by too precipitate action.

On the subject of the canonic law (Shariat) Stalin said that "the Soviet Government regarded the Shariat as being as competent a customary law as any which obtained among other peoples inhabiting Russia". Later, in 1921, S.M. Kirov said "the Soviet regime is in no way concerned with individual beliefs. One can believe in, pray to and rely upon what one likes. But when it comes to the Shariat, there is something more than the religious side; there is also the matter of general control". Replying to a Muslim delegate's demand at the Congress of Soviets of the Mountain Republic that they should be allowed to have the Shariat in its entirety, Kirov said that the Soviet regime's task was to create Soviet conditions of life irrespective of tribe, language or creed. If some agitation hostile to the Soviet regime were to move under cover of the Shariat, "we shall always fight it and scatter every anti-Soviet group". At the same Congress Kirov said: "Our Communist Party has never and in no sense aimed at establishing any kind of control over your Shariat. That is your affair. The Communist Party is not concerned with this question from any point of view".

Kirov's statements, pronounced during the years of the Civil War and intervention, "prove what a vast educational work was conducted by the Communist Party during the difficult period of the armed struggle". His initiative "unquestionably played a great positive role and gained the sympathy of a large section of believing Muslims". His pronouncements "clearly showed the difference in the attitude of the Soviet regime and Communist Party towards Islam and the Shariat on the one hand, and towards the counter-revolutionary activities of the Muslim clerical element on the other".

After the victorious conclusion of the Civil War, the Party took up in earnest the matter of anti-religious propaganda. At the XIIth Party Congress of 1923 a resolution was adopted on "the establishment of anti-religious agitation and propaganda". The resolution laid down the general lines on which the campaign was to be conducted. Dealing with the same subject, the XIIIth Congress of the Party adopted a
resolution on "work in the country". This included the following passage: "It is essential that any attempts to combat religious prejudices by administrative means should be decisively abandoned. Such means include closing of churches, mosques, synagogues, prayer-houses, and the like. Anti-religious propaganda in rural areas should consist of an exclusively materialistic explanation of the natural and social phenomena with which the peasants are confronted... Particular care should be taken to avoid offending the religious sensibilities of the believer which can only be overcome by long years of carefully planned work of enlightenment. Such caution is particularly necessary in the eastern republics and oblasts".

The results obtained by anti-religious propaganda were reviewed in two conferences held under the auspices of the Agitprop of the Executive Committee of the Communist Party in April 1926 and June 1929. These results were later summarized in a series of articles by Em. Yaroslavskii. He stated that: "The Socialist reconstruction of the people's economy is destroying the economic and material roots of religion. It is on this account that the kulaks are relying upon various religious organizations for the struggle against collectivization. No wonder that the mullas frightened the Kirgiz with the idea that the kara shaitan (black devil), that is, the Turksib locomotives, would soon traverse the steppe. Under the influence of the successes achieved by Socialist reconstruction the atheistic movement has become a mass movement".

Even after the end of the Civil War "bourgeois-reactionary elements" and the representatives of various Muslim and other religious sects continued a sporadic fight against the Soviet State. In this they were "supported by foreign imperialists exploiting the backwardness of eastern peoples". The state of affairs which resulted from NEP (New Economic Policy) contributed to the revival of "bourgeois nationalist ideology". In the resolution of the XIIth Party Congress relating to propaganda it had already been noted that the shortage of propaganda material in non-Russian languages had combined with NEP to strengthen the influence of the petty bourgeoisie and "nationalist-clerical" element among the people using those languages. Among eastern peoples this resulted in the growth of pan-Islam and pan-Turanianism. "Very important for all students of Islam is the resolution's finding that, owing to a number of historical and social circumstances, the influence of the non-orthodox churches and priesthoods among people of non-Russian nationality was and still remains, especially among Muslims and Catholics, stronger than the influence of the Orthodox church". Anti-religious propaganda, said the same resolution, should take this peculiarity into account.

It was the foregoing historical background and defined objects which conditioned the first Soviet literature devoted to the subject of Islam.
Publications on Islamic subjects, 1918 - 1924

The first Soviet literature dealing with the subject of Islam took the form of articles in periodicals, and of occasional books and brochures. Zhizn Natsionalnostei (The Life of the Nationalities), which first appeared as a daily in 1918, in 1922 as a weekly, and in 1923 as a monthly, contained a number of articles on Islam mostly dealing with its political aspect. Some of those mentioned are "The Koran and the Revolution" (1920), "The Muslim Poor and the Red Army" (on the experiment of attracting the indigenous population of Turkestan into the Red Army) published in 1920, and "Babism and Behaism" (1922). Most of the publications of this period were popular scientific works "designed to expose the class character of Islam and the anti-popular and treacherous activities of the clerical element". One book of this kind was The Basmachi Movement in Bukhara.

More specifically concerned with Islamic matters was the periodical Novyi Vostok (The New East) which lasted from 1922 to 1930. This was designed to throw light on living conditions in the Soviet East as well as in other eastern countries. It contained a great deal of factual material but "the editors were unable to turn it into a militant scientific and theoretical organ elaborating problems of the contemporary east on the required ideal (i.e. Communist) political level". Some of the notable articles mentioned were "The Religious Movements of the Kizil-Bash of Asia Minor" by Gordlevskii (No.1 of 1922); "The Brotherhood of Fighters for the Faith" (No.6 of 1924), a description of the Jamiat-ul-Mujahidin founded by Sayyid Ahmed in India; and "The appearance of Islam seen in a new light" (No.4 of 1923 and No.6 of 1924) by Professor Dobrolyubskii. The last mentioned discussed in detail the theory of the Italian orientalist Caetani who considered Islam to be the final phase of the emigration of Semitic peoples from Arabia, which began in 4000 B.C. Another magazine which paid considerable attention to Islamic matters was Kolonialnyi Vostok (The Colonial East).

During this period the so-called academic orientalists such as Bartold, Krachkovskii and Shcherbatskii displayed considerable literary activity, mostly on highly specialized subjects. Bartold in particular was "the first oriental scholar of the old school to recognize the need for spreading among the broad masses of Soviet readers accurate information on Islam based on scientific conclusions and free from any kind of missionary approach". Apart from purely academic work, he wrote a number of popular scientific works on Islam, the chief of which was Islam - a General Sketch which appeared in 1918. Although these books contain much which is of interest to Soviet students, they tended to minimize the importance of Russian orientalists as a whole. The work of
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foreign orientalists is described in detail, pride of place being given to the British orientalists Gibbon and Muir and to others such as Caetani, Goldziher and Lammens.

1926 - 1934

During this period, the Party successfully realized its policy of the Socialist industrialization of the country and solved that most difficult problem, the amalgamation of millions of small peasant farms into kolkhozes. This, together with the liquidation of the kulaks as a class, "led to the destruction of the last roots of capitalism and to the victory of Socialism". Such an operation naturally necessitated gigantic efforts on the "ideological front" in order to expose all those who were "interfering with the onward march of Soviet society and were supporting and cultivating all kinds of outworn traditions, backwardness and illiteracy". "Religious organizations were widely used by the enemies of Socialism. Particularly in the national regions of the Soviet East, where the laws and traditions of Islam were preserved by the Muslim clerical element, and also by all the various 'Ishans, Dervishes and Pirs', they continued to play a very important role in the private life of the people, and especially in their family life in which they were intent on perpetuating the subordinate position of the eastern woman and preventing her from taking her place in society".

Apart from various commissions designed to better the lot of women, "societies of the godless" were created throughout the national republics and oblasts in order both to conduct widespread propaganda work, and to publish anti-religious periodicals, books and popular pamphlets in the national languages. In Moscow special publishing houses called "Bezbozhnik" (the Godless) and "Ateist" were specially created for the latter purpose. The authors of many of these publications, however, were "insufficiently educated on Marxist lines" and their works were consequently "of a very trivial character and quite unable to satisfy their readers". Of outstanding importance, however, are the many anti-religious works of Em. Yaroslavskii who laid down as a general principle the inculcation "in the child of a hatred of those fetters imposed by religion... and of the greatest love for the people of other races and other tribes".

Much of Yaroslavskii's anti-religious activity was directed towards Transcaucasia. "Transcaucasia", he wrote, "is to a certain degree the key to the East; in its way it is a strategic gateway, and if the interventionists gain possession of it, they can exercise tremendous pressure on a whole series of states. This ancient 'road of the peoples' still has a great political significance. In Transcaucasia, until quite recent times, there has been concentrated the attention of the international counter-revolutionary
movement not only of the Georgian Mensheviks, the Armenian Dashnakists, and the Musavatists, but of those who stood behind them - the British, French and other Imperialists. They support the counter-revolutionary clerical element and do not hesitate to give their backing to any new, subtle and 'adapted' religion such as Behaism. Even now (1931) the Muslim hierarchy plays a very important role in the Soviet East...

Quite recently they have attempted to create in Azerbaijan 'saintly specialists for the struggle against collectivization. Mulas and kulaks have spread rumours that in such and such a place there is a saint whose 'speciality' is hostility to collectivization", but, he continued, "no prayers to Allah and other non-existent gods can turn the vast, teeming masses of the population of Soviet East from the Socialist path".

Most of the anti-Muslim propaganda material mentioned as appearing in this period seems to have been in the Russian language. An exception to this is the magazine Fen-em-Din (Science and Religion) published in Moscow in 1925 in the Tatar language. Russian articles appearing between 1927 and 1929 were on such subjects as "The Religious Movement in the Tatar Republic", "Atheist propaganda in Bashkiria" and "Anti-religious propaganda in the Soviet East"; a magazine called Revolyutsiya i Gorets (Revolution and the Mountaineer) published in Rostov-on-Don in 1929 contained articles on such subjects as "Large-scale godless work in the national oblasts", "From the patriarchal family to the atheist family", and "Why I stopped believing in God".

Another prolific writer on Muslim subjects from the anti-religious standpoint was L. Klimovich whose works, and especially Socialist Construction in the East and Religion (1929), are still of great importance to students of Islam, in spite of the "numerous defects" which they contain. Klimovich also wrote a book entitled The Contents of the Koran (1928), the avowed object of which was to set forth the basic propositions of the Koran and "to provide the anti-religious man with a systematic exposition of its ideas". The author claimed that this book was the first exposure of the internal contradictions of the Koran and he draws a sharp distinction between "the exploiters, in the interests of whom the Koran was written, and the exploited, from whom submission, obedience and belief in a future life of heavenly consolation were demanded". The book is, however, "misleading" in many respects since Klimovich shared the theory expounded by Professor M.A. Reisner under the influence of the so-called school of Pokrovskii about the part played by commercial capitalism in the rise of Islam and the emergence of the Koran.

A book entitled Islam and the Modern East (1928) by N.A. Smirnov
was an attempt to consider in a single volume all the questions relating to the basic teaching of Islam, its political role, the organization of the Muslim hierarchy and the part played by Islam in everyday life. It contains a description of national liberation movements in such countries as Persia, Turkey, India and Egypt. There is much descriptive material written in a popular style but "the theoretical level of the first two editions is very low".

Specialized publications

Various works on Muslim festivals and ceremonies appeared at this period including Klimovich's article "Hajj (pilgrimage), the Vampire of Islam" (Ateist No.53, 1930); V. Shokhor's The "Holy" Month of Ramazan (Moscow, 1930); S. Turkhanov's Muslim Feasts (Moscow, 1931); L. Klimovich's Kurban-bairam (Moscow, 1931) and the brochure, Against Uraza (fasting), (Moscow, 1933). These combine accounts of the origin of rites and holy-days with modern examples of their "reactionary and poisonous" character.

Among works on the subject of woman, N.A. Smirnov's The Chadir (1929) on the origin of the Muslim woman's veil and the struggle against it, contained a "now inaccurate" account of the sources of the custom and an interesting chapter compiled on the basis of an address of the Central Committee of the Uzbek and Azerbaijani Communist Parties to the workers appealing for the emancipation of women. S. Agamali-Ogly's book Namus in Isolated Societies of the Islamic World (Baku, 1929) gives economic independence as the remedy for the imagined loss of namus (respect) by Muslim women. The author acknowledges that compulsion will be necessary, and that therefore legislation on the rights of women must be "reinforced".

Soviet studies of the Muslim sects have had as their object "the exposing of the reactionary nature which they share in equal measure with Islam itself". A.M. Arsharuni's brochure Behaism (Moscow, 1930) contains a chapter on the pretensions of Behaism to contain the essentials of Socialist doctrine; the author went "too far" in his attempts to find a revolutionary note in some Behaist slogans. I. Darov's Behaism - the New Religion of the East, an examination of the speeches and letters of Abdul-Beha, concludes that between Socialism and Behaism there lies the same difference as between Socialism and Capitalism. M. Tomar's article "The sources of Wahabism" in Ateist No.53, 1930 accounted for the new puritan element in Islam by the economic conditions in the Najd of Abd-al-Wahab.

The theocratic character of the caliphate was the subject of P. Gidulyanov's article "The Caliphate as a Peculiar System of Relations between Church and State" (Ateist No.58, 1930). It was based on Bartold's
work on the adoption of the title of Caliph by Selim I in 1517, though Bartold himself denies that this happened. Gidulyanov attributes the system to Muslim theories of the "Kingdom of Allah" on earth, and to the influence of Byzantine conceptions of empire. He denies that the Young Turks in 1908 opposed the religious authority of the Sultan. His statement that the Turkish reforms in the relations between Church and State - the abolition of the sultanate in 1922 and of the caliphate in 1924 - were modelled on and influenced by Soviet reforms in the RSFSR, particularly the separation of Church and State, are "completely incredible". This "absurd" assumption vitiates the otherwise interesting discussion of Britain's policy of using the caliphate and Islam to keep her Muslim subjects under control.

"Islam and Land-ownership", an article by M. Tomar in Ateist No.58, 1930, combats the opinion of Hammer, Worms, Perron and others that Islam denies the right to own land. M. Tomar affirms that the Koran is not the real source of Muslim law, but the sunna, which is based on the decisions of Muhammad and of the ashab (the companions of the prophet). He attempts to show that in seventh-century Arabia a system of private ownership was in force. This meant, in fact, that Islam sanctioned the "nationalization" of the land in favour of the ruling group around the Caliph Omar. Islam's most favoured system of land-ownership, the author concludes, was that of vakf.

Among other articles appearing at this time, S.M. Abramzon's "The Manaps and Religion" (Sovetskaya Etnografiya, No.2, 1932) was the outcome of an expedition to the Chu district of Kirgizia in the summer of 1930. The manaps, says the author, were the first to accept Islam in Kirgizia and used it to increase their hold on the people. By the beginning of this century the interests of the manaps and the mullas came to be completely identified. At the time of the 1916 rising the Muslim clergy agitated against the war with Turkey, and during the first years after the Revolution the number of mosques in Kirgizia grew considerably - which fact the author treats as an indication of the growth of pan-Islamic secret societies.

The Tatar Economic Institute published in 1930 a work by M. Sagidullin, Introduction to the History of the Vaisov Movement. This movement took its name from Vaisa-al-Kurani, a legendary associate of Muhammad; they also call themselves "Nakshbendi" after the dervishes of that name. Sagidullin says that they took these names to give an appearance of history to their movement. The sect was founded in 1862 by Bagautdin (Bahauddin), a Turkestan trader, who declared himself as a Ghazi in Kazan and opened a "State House of Prayer". The author claims that their doctrine "reflected the interests of the peasants", and he
compares it to the teaching of Tolstoi. Their essential demands were: "Do not acknowledge Muslim assemblies, Tatar mosques, or any Government institutions; do not wear uniform or bear arms as a soldier; do not pay taxes; do not submit to any civil power; do not accept summonses or sign papers". From 1906, the author remarks, Vaisovism began to attract the petty bourgeoisie and to formulate an attitude of staying outside the class struggle, and although they made addresses of loyalty to the Soviet regime, the "Vaisovtsy" after the Revolution were a reactionary movement. (Smirnov comments that the connections of Vaisovism and Pan-Turkism would form a profitable field of study.)

The Ateist collection

A group of scholars on the staff of the magazine Ateist published in 1931 a collection of articles under the general title of "Islam". The first three articles - L.I. Klimovich's "The Origin of Islam", V. Dityakin's "Islam and Today", and B.N. Nikolayev's "Islam and the State" - were written from the standpoint of the Pokrovskii school, that is, of "economic materialism", and are "in contradiction to Marxist-Leninist doctrine". M.L. Tomar's article, "Islam and Communism", however, though it states that the two are incompatible through the conflict of individual points of Islamic law with the principles of Communism and not through a fundamental opposition of weltanschauungen, rightly shows Islam to be "a defender and consolidator of the rights of property"; but he errs in saying that Islam ever was a peasant ideology. Belyayev's and Arsharuni's articles on the sects are an exception to the general level of the collection, which "reflects the level of Islamic studies in 1931 very poorly".

The bibliography, however, although it contains none of the pronouncements of Marxism-Leninism on Islam, is still not without value. It lists 246 Russian and 197 foreign titles under six headings: general works; Muhammad and the Koran; doctrine, ritual, and Muslim law; the sects (mysticism, Sufism, and dervishism); Babism and Behaism; and Anti-Muslim propaganda. Belyayev, in his general introduction, affirms that the Tsarist Government did not realize the need and importance of the scientific study of Russian Islam, and it must be admitted that he judges pre-revolutionary literature on Islam "with unwarrantable severity". It is not possible to dismiss the work of all but a few authorities; "Russian scholarship has always held the first place in Islamic studies". A similar bibliography of works on Islam in Tatar was compiled by Klimovich for Ateist (No. 58, 1930).

In 1931 Belyayev published an anthology, The Origin of Islam. His purpose was to supply students of Islam without a knowledge of foreign
languages with source material. He quotes Schprenger's and Grimme's theories, and in conclusion that of Caetani which, as he notes, has never found favour in the West although it is undoubtedly "the most developed" of bourgeois theories. Belyayev himself is not sufficiently critical of bourgeois works on Islam and mistakenly proposes that Islam was "a sort of social-economic movement" which is, of course, "ridiculous".

Theories on the origin of Islam

All theories of the rise of Islam, about which there was a particular amount of speculation at this time, took as their starting point the economic situation of the Arab tribes of the seventh century. These theories can be divided into five groups: (1) the theory held by M.A. Reisner, E.A. Belyayev, L.I. Klimovich, V.T. Dityakin, and N. Bolotnikov that the motive force of the nascent religion was supplied by the mercantile bourgeoisie of Mecca and Medina. (2) the theory of N.A. Rozhkov that Muhammad brought about a feudal revolution. (3) the theory of M.L. Tomar that Islam arose among the impoverished peasantry of the Hejaz. (4) the theory of N.A. Morozov - ingenious if unwarrantable - that until the Crusades Islam was indistinguishable from Judaism and that only then did it receive its independent character, while Muhammad and the first Caliphs are mythical figures. (5) the theory of S.P. Tolstov that Islam was a social-religious movement originating in the slave-owning, not feudal, form of Arab society.

(1) Reisner first propounded his theory in the article "The Ideology of the Koran" and his book Ideologies of the East (1926-27). He holds that the nomadic tribes of Arabia were an impediment to the development of the foreign trade of Mecca; Muhammad provided the unifying factor in Islam; Allah is "an apotheosized merchant-trader". This theory overlooks the fact that the Koran is essentially "a defence of the ruling classes, and intended to divert the attention of the proletariat from the class struggle". Despite its non-Marxist character, Reisner's theory has had a considerable influence on many Soviet Islamists.

Belyayev in the article "The Role of Meccan Trading Capital in the History of the Origin of Islam" (Ateist No.58, 1930) holds that Meccan merchants organized caravans in cooperation with the poorer classes of the city, and that the relations between Allah and men were those of trade.

Dityakin in "Marx and Engels on the origin and essence of Islam" (Ateist Nos.22-23, 1927) tries to support excerpts from the Marxist classics with the work of Caetani and Lammens (quoting K. Dobrolyubskii's
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He also uses the work of Reisner ("The Koran and its Social Ideology" Krasnaya Nov, Nos. 8-9, 1926) and of Klimovich ("The Question of the Origin of Islam", Ateist, 1927). In "The Fundamental Principles of an Historico-Materialist Analysis of the Origin and Development of Islam" (Ateist No. 27, 1928) he again claims that the initial work of gathering material has already been done by bourgeois scholars, and especially Caetani, and that the principal task of Soviet scholarship is interpretation. This leads to a neglect of sources such as the hadith (traditions). His reliance on the work of Caetani and acceptance of Bartold's theory that the creators of Islam were the town-dwellers involve him in the "mistaken theory of the Pokrovskii school - trade capitalism", which vitiates the work of all the members of the first group.

(2) Rozhkov's theory is expounded in the eighteenth chapter of his book Russian History in the Light of Comparative History (1928). He relies too much on his sources - Müller, Goldziher, and Kremer - to give a truly Marxist interpretation and he gives too much importance to the personal role of Muhammad.

(3) M.L. Tomar, in "The Origin of Islam and its Class Foundation" (Ateist No. 58, 1930) holds that Islam was not a superstructure on an existing system, but an independent "category" taking its character from the population of Medina, whither trade capital had driven it from Mecca. This population he believes to have been agricultural, basing this theory on the reports of eighteenth and nineteenth-century travellers, and Islam was therefore a religion of the poorer and depressed classes. The incompatibility of this theory with Marxist views of Islam is evident.

(4) Morozov, in his book Christ (1930) propounds in the chapter of the sixth volume entitled "Whence comes Islam?" these theses: In the Middle Ages Islam was merely an off-shoot of Arianism evoked by a meteorological event in the Red Sea area near Mecca; it was akin to Byzantine iconoclasm. The Koran bears traces of late composition, up to the eleventh century. The Arabian peninsula is incapable of giving birth to any religion - it is too far from the normal areas of civilization. The Arian Islamites, who passed in the Middle Ages as Agars, Ishmaelites, and Saracens, were indistinguishable from the Jews until the impact of the Crusades made them assume a separate identity. All the lives of Muhammad and his immediate successors are as apocryphal as the accounts of Christ and the Apostles.

Morozov throughout replaces scientific examination by the construction of hypotheses, often contradictory; for instance, he largely identifies the Koran and the Bible, but gives the date and place of the Koran's first
appearance as the thirteenth or fourteenth centuries in the Balkans and not in Arabia.

(5) Tolstov (known today for his work on the Khorezm Oasis) in his article "The Outlines of Early Islam" (Sovetskaya Etnografiya No. 2, 1932) discusses some of the views noted above as presented in the special number of Ateist (1930). These found the motive power of Islam in the nomadic tribes, the trader bourgeoisie, and in the "impoverished stratum of the agricultural population". Tolstov's main criticism is that all these views tend to regard Islam as an unique phenomenon with an unique cause. In fact, Islam was not the result of any one social cause or the child of any one class. Although Tolstov does not bring out clearly the nature of Islam "as an ideological superstructure", his treatment is the most satisfactory of all the authors examined. Nevertheless, with the exception of Morozov, they all witness to "the originality of growth of Soviet scholarship" at a period when the question of the origin of Islam had proved "beyond the powers" of bourgeois Islamic studies.

The personality of Muhammad

Morozov's denial that Muhammad had ever existed had a considerable influence on Soviet Islamic studies, particularly on Klimovich's article "Did Muhammad Exist?" (Voistvuyushchii Ateizm Nos. 2-3, 1930) prepared from a paper read to the anti-religious section of the Communist Academy of the Institute of Philosophy. Klimovich points out that all the authors who give biographical details of Muhammad lived some considerable time after his death, and that it has been assumed by all subsequent historians that every religion must have had a founder. Tolstov, however, in the work mentioned above, remarks that such a purely negative approach to the question is not a sufficient basis for denying Muhammad's existence. Tolstov prefers to abandon the biographical approach to the Koran and to adopt Noldeke's division of the Koran into four groups - two Meccan and two Median. The Koran, he remarks, lacks any mention of the prophet's real name, of the place of the battle with the Kureish, or of the Hijra. The "myth" of Muhammad has much in common with the central "myths" of many religions; Tolstov finds parallels in the "deified shamans" of the Yakuts, the Buryats, and the Altais. Ali, who for half of the Muslim world is, if not a god then near to one, is another example of such deification. The social purpose of this myth was to check the disintegration of the political block of traders, nomads, and peasants, which had brought to power the new, feudal aristocracy.

Despite Tolstov's shortcomings, particularly in the field of Arab
philology, this approach to the central myths of Islam is interesting and well grounded. Equally interesting is I.N. Vinnikov's treatment in "The Legend of the Call of Muhammad in the Light of Ethnography" (Articles presented to S.F. Oldenburg, 1934). He distinguishes two variants in the legend, the "passive" - Muhammad's opposition to the call, and the "active" - his solicitation of it. Both are typical features of shamanism and are found at the root of all religions. An example of the "passive" tendency - Muhammad's desire to be wrapped up or to have water poured on him - is typical primitive magic. Indeed, the "passive" feature is the more ancient of the two, though both are found in pre-Islamic Arab cults.

Vinnikov's work shows traces of Marr's "work-magic" theory, and he obscures the fact that the "active" element in shamanism represents the transformation of magic into a lucrative profession. It is obvious that further work on the subject of Islam's origin based on the work of the three authors discussed will have great importance in clarifying issues in Islamic doctrines as well.

To be concluded
INTER-REPUBLICAN FRONTIERS

Sketch-map showing the inter-republican frontiers of Uzbekistan, Tadzhikistan and Kirgizia, and the interlacing of their territories in the neighbourhood of the Fergana Valley region.
The above map shows the area covered by CENTRAL ASIAN REVIEW in relation to the rest of the
The total extent of the area is about $1\frac{1}{2}$ million sq. miles. According to the latest available figures the total populat
is about $16\frac{1}{2}$ millions of whom about 11 millions are indigenous and the remainder settlers from other parts of the USSI
The total area of the rest of what is generally regarded as Soviet Asia i.e. the Urals Region, Eastern and Western
and the Soviet Far East, is approximately 8 million sq. miles and the population about 37 millions of whom approximat
millions are estimated to be indigenous. Thus, whilst Central Asia and Kazakhstan together occupy less than one fifth of the total area of Soviet Asia, their indigenous population amounts to nearly two thirds of the total indigenous population of the whole of Soviet Asia.