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... FBIS 40TH YEAR 1941-81 ...

USSR Report

POLITICAL AND SOCIOLOGICAL AFFAIRS

(FOUO 5/81)



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INTERNATIONAL

ROLE OF CINEMA IN IDEOLOGICAL STRUGGLE DESCRIBED

Alma-Ata QAZAQSTAN KOMMUNIYSI in Kazakh No 12, 1980 pp 88-91

[Article by B. Zhiyenghaliyev: "Film and Ideological Struggle"]

[Text] The cinema, the most mass oriented and influential of the fine arts, is assigned an important role in man's spiritual enrichment and in the formation of his world view. For this reason this art form is widespread in all the countries of the world and is employed as an ideological weapon.

After the victory of the Great October Socialist Revolution we were suddenly faced with the need to carry out a cultural revolution in our nation. At that moment V. I. Lenin, the great leader of the proletariat, bearing in mind the need to use the cinema, propaganda films in particular, for awakening consciousness as people's schools were opened, ordered the founding of the Soviet cinema, the most powerful of all the arts for us.

The cinema has, in fact, fulfilled a major function in the formation of the world views, humanitarian consciousness and aesthetic appreciation of generations of Soviet people, working together with out national history. The Soviet cinema, which has earned a large amount of the workers' honor and love has sung of man's noblest properties, trained the people in virtue and justice and supported the achievement of lasting world peace and the consolidation of international friendship. The Soviet Union is a strong pillar of peace and economic progress. Thus reactionary forces are openly directing all their ideological weapons and deceits against the Soviet regime and communism in general. Just now, in connection with the coexistence of two camps in the world, the struggle between the two ideologies, the communist and the bourgeois, is not only not dying down but is intensifying once again. At present all the weapons in the hands of the bourgeoisie, and they include the cinema as well as the press, radio and television, are aimed at deceiving the workers, instilling many lies in their minds about the "paradise" constituted by the capitalist way of life and likewise lying about communism to the greatest degree possible.

Among the reactionary forces the cinema of the United States must, before any others, be considered the most harmful in many countries of the world. The reason is that the cinematography of that country, which is characterized by economic inequality and racism, dominated by monopolies and developed through poverty and unemployment, is under the control of great capitalist investors. These investors have poured out funds abundantly and made films to propagandize the bourgeois life style, spreading deception freely. Their films aim at making other peoples of the world believe in the "free world" paradise by depicting unbelievable crimes and incidents that trample

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on human feeling. We need go no further than to examine the way in which the Great Patriotic War of our Soviet Union, which destroyed and smashed German facism, is treated. American cinematographers have produced a number of films based on the clumsy lie that it was not the Soviet people who crushed the German facists in the Great Patriotic War. In this way they have sought to distort historical reality to the greatest possible degree. In films such as "The Longest Day" and "Battle in the Ardennes," for example, the great lie and erroneous conceptions, totally opposed to reality, are put forth, which state that it was American forces that bore the whole load in the Great Patriotic War.

However, the undying heroism of the Soviet People in the Hitlerite German onslaught, carried out treacherously and by surprise, is known to the whole world. Many films have come out in the Soviet Union to set them right and bravely stand up against bourgeois lies. The beautifully photographed four-part film "Freedom" (scenario Yu. Bondarev and O. Kurganovtiki, director Yu. Ozerov, cameraman I. Slabnevich) and the 1979 20-part documentary "Great Patriotic War" must be specially mentioned in this context. The immortal heroism of the Soviet people in smashing facism and liberating a number of European nations are pictured very artistically and faithfully in them. The films have become veritable epics that transmit the heroism of the Soviet people from generation to generation. The films "The Real Facism" of the famous director M. Romm, USSR people's artist, "A Continent Ablaze" of Roman Karmen and "The Sweet Word Freedom" of V. Jalakyavichus, along with many others, are very powerful political-educational journalistic expressions that raise the banner of communist ideology.

Bourgeois propaganda is spread to socialist countries and even to the capitalist countries themselves through the cinema and, as has been stated above, the United States is the nest of bourgeois propaganda. The United States cinema has, at the present time, become a primary weapon of imperialistic policy. The cinema of this nation, which has ignited the fire of ideological struggle against socialism, is directed, first and foremost, at propagandizing various common manifestations of a progressively degenerate bourgeois life and poisoning the thoughts of mankind. It is especially annoying that American films totally without any educational value, hazy in meaning and encouraging individual to commit crime are spread in many countries of the world through various means. However, at the same time, the work of cinematographers such as Stanley Kramer, Sidney Pollak and Arthur Pain, who are against films of this kind and promote progressive ideas, is enjoying support from the working masses in bourgeois countries. Their creative purpose is to bravely reveal on the screen the realities of the bourgeois life and likewise raise their voices against racism and the exploitation of man by man. Such films show completely what the "free world" really is and what is going on in America today. Through such films, various manifestations of insane lawlessness in contemporary American and the prevalence of rowdyism among young people in particular are clearly shown.

The contemporary bourgeois cinema wishes to please its viewers and seeks to turn them away from their basic goal, from struggle, and likewise to teach weakness. Secondly it has generated lies against the camp of socialism through misrepresentation of life in the countries friendly to socialism led by the Soviet Union and is attempting to spread such films to the screens of other nations. The film "Psycho", by American director Alfred Hitchcock, can be taken as an example. The plot of the film is primarily about a young woman, who had stolen a large sum of money, has hidden in a motel far from the city and how the manager of the motel finds out about the money, kills the woman and takes the money for himself. What is the film trying to say? One answer is possible. The film narrates crime and bourgeois degeneration.

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The film "Scar," filmed by the English director G. Garin, and "Pishek" of the Dutch director Fons Rademaker narrate various unbelievable crimes of young people. Likewise, the film "Born to Hate" by T. Frank, a United States director, depicts various crimes among youth and unbelievable evils of the bourgeois way of life.

Millions of viewers, young people in particular, can find no models or education in these films. Such subjects are needed by American cinematographers who are seeking to poison the minds of men. In any case, their goal today is to draw the glance of the people away from pressing problems and hold them back from the struggle for political freedom. For this reason bourgeois film makers have acquired the habit of producing cheap films, "disaster films" and "sex films," that propagandize the loose bourgeois life. The primary purpose of such films is to poison the minds of men showing hair-raising or various fast action scenes that make people feel helpless against horrible disasters such as airplane fires and earthquakes.

There are not a few that believe completely, without reservation, in simplistic and totally contentless productions of this sort. There is, for example, so much imitation of American films in the cinematography of countries such as England, France and Italy today, even to the extent that national traditions and cultures are compromised, that the door is opened widely to dissemination of various kinds of criminality. We cannot forget this fact when we come to Japan which, in terms of the number of films produced, competes with the abovementioned countries. Takemasa Isamaru, president of the Japan Sea Production Company, spoke with an author in the following terms at the Taskent International Film Festival for the countries of Asia, Africa and Latin America.

"Our viewers have become accustomed to being entertained on the screen by films that portray fights, or death by shooting or stabbing, scenes that excite one and all. To tell the truth, films that I have seen produced by you of the "a girl and silk" type would not move our viewers. Thus we are eager to buy larger numbers of American films and produce films imitating them." Thus he openly confirmed what I have been saying.

The cinema, like other branches of the fine arts, must educate people in what is most wonderful and good in the world, in justice and in a communist moral spirit of friendship, comradeship and the kinship of one man for the other. After the victory of the Great October Socialist Revolution the native Soviet cinema took up important revolutionary themes, beginning from its very first films. The great power of the revolution, the people and the communist party have found expression in every way in historical-revolutionary films such as "Battleship Potemkin" and "October" of the great filmmaker S. Eisenstein, who pioneered in showing the masses on the screen. The films "Chapaev" of Vasil'yev, "Shchors" of A. Dovjenko and "Amankeldiy" of our own Kazakh film industry are beautiful manifestations that roused us to heroic deeds in an era of difficulty that weighed down our people and added strength to our strength. In the film "Ana" Nilovna, in "Descendent of Chinggis-qan," Bayir, in "Chapaev," the hero Chapaev, whose name was on the lips of everyone, in "A Baltic Deputy," Polevaev, in "Shchors," Shchors, the famous hero of the civil war, in "Kotovskiy," Kotovskiy, in "Amankeldiy," Amankeldiy, and in "Song of Manshuk," Manshuk Matova, along with other people's heroes that struggled for the freedom and happiness of the masses, are made into completely unforgettable, powerful characters. These characters have found places in the hearts of million of people and have become classical forms. If we may say so, the Great Patriotic War, the mastering of virgin

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and reclaimed lands and space flight occupy a special place in every area of the cinema history of the age. Another superiority of Soviet cinematography over the capitalist cinema lies in its multi-ethnic character and in its truthful, sensitive and loyal depiction of Soviet life. This proves that the multi-ethnic Soviet cinema has developed upon the basis of socialist realism in art.

Socialist realism makes possible the acknowledgement of the national character of art and its enrichment from the standpoint of content and form. However, the internationalist character of the Soviet cinema arises from the unity of thematic and creative solutions, aesthetic methods and technical ability and likewise the Marxist-Leninist worldview. Thus the Soviet cinema is greatly honored as an assistant of the Leninist party in beneficial work such as spiritual enrichment of the people and, also, firm imbuing with the communist morality and aesthetic and with citizenship and idealism.

Our cinematographers are showing the reality of the times on the screen in a consistent and systematic manner. Our films, which have always been closely connected with the processes of social development, give special consideration to the economic activities and good intentions of the Soviet people.

Two worlds and two ways of life! Under present conditions where the ideological struggle, which has flared up again without any possibility of reconciliation between socialism and capitalism, is being expanded in scope, the cinema of the socialist countries led by the great Soviet Union is educating people in a higher consciousness, in the consolidation of friendship and in patriotism. The Soviet cinema is the most advanced, progressive, highly motivated and mass oriented art in the world. Its most important characteristic and power lies in the area of exalting revolutionary humanism and in educating people to become knowledgeable strugglers for communism through depicting the real nature and purpose of modern life, relying upon the Marxist-Leninist science.

In a report delivered to the XXV Party Congress, Comrade L. I. Brezhnev, first secretary of the CPSU, pointed out that "imperialist propaganda is becoming rather adroit as the struggle of ideological contradiction intensifies between the two systems." Brave concern with the realities of Soviet life and the hopes of the socialist nations must remain a primary obligation of Soviet cinematographers as the struggle against bourgeois ideology is intensified. The cinema must be irreconciled to anything hindering our progress and to bourgeois ideology and morality while imbuing the broad massing of people with a Marxist-Leninist world view, socialist internationalism and communist humanitarianism.

Comrade D. A. Qonaev, member of the Politburo of the Central Committee of the CPSU and first secretary of the Central Committee of the Kazakhstan Communist Party said, in a report presented recently at a special session of the Supreme Soviet of the Kazakhstan Communist Party, that "the party and the people expect new expressions of an eternally creative talent from our men of letters, graphic artists, musicians, architects, theater artists, cinematographers and publications workers. It is highly meaningful for them to express, with all dialectical apparatus, the complexity of the age, the humanitarian views of contemporaries and to be irreconciled to anything contrary to our way of life. Marxist philosophy, the Leninist theory for depicting life and progressive traditions must be masterfully combined with real innovations as before as the conscious direction of fine arts creativity."

Adhering to this great demand is the primary task and most important responsibility of Soviet artists. Thus the cinema, which is the most broad-based of all arts, will do beneficial work in the area of helping all humanity to achieve its goals.

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BODYUL SPEAKS ON MOLDAVIAN AGRO-INDUSTRIAL COMPLEX

Moscow VESTNIK AKADEMII NAUK SSSR in Russian No 12, 1980 pp 3-16

[Speech by I. I. Bodyul, first secretary of the Moldavian Communist Party Central Committee: "Developing the Moldavian SSR Agroindustrial Complex On the Basis of Modern Scientific Achievements"; followed by question and answer period and description of USSR Academy of Sciences resolution on Moldavian agroindustrial complex]

[Text] The resolutions of the 25th CPSU Congress and the July (1978) CPSU Central Committee Plenum defined the goals and tasks of party agrarian policy at the present stage of development of socialist society. Agriculture is one of the most labor- and capital-intensive branches of the national economy. Experience shows that the most intelligent and efficient way of developing agricultural production is to specialize and concentrate it on a base of interfarm cooperation and agro-industrial integration. In Moldavia, intensified farm specialization and the creation of large interfarm enterprises and agroindustrial complexes have ensured significant growth in agricultural output production and have prepared a base for the broad introduction of industrial methods into the work of rural laborers, which has led to significant reduction in the use of manual labor in republic agriculture. The shifts which have occurred have been an important factor in the economic growth of agriculture, in improving agricultural management, and also in major social changes in the countryside. In this connection, science is now faced with qualitatively new tasks, in that its organization must be brought into line with changes in the organization of production and management. The question of developing the agroindustrial complex of the Moldavian SSR on a basis of modern scientific achievements was examined at a meeting of the USSR Academy of Sciences Presidium, where a speech was given by I. I. Bodyul, First Secretary of the Moldavian Communist Party Central Committee.

I. I. Bodyul began his report with these words by Leonid Il'ich Brezhnev: "Create for the working person conditions most favorable to work, study and recreation, to the development and best application of his abilities -- that is the primary goal and primary meaning of the policy our party is systematically actualizing."¹ Actualization of this task, he continued, is directly dependent on the dynamic functioning

1. L. I. Brezhnev, "Leninskim kursom. Rechi i stat'i" [On A Leninist Course. Speeches and Articles], Vol 2, Moscow, Politizdat, 1973, p 574.

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of the country's agroindustrial complex, a large structural subdivision of our economy which encompasses agriculture and related branches associated with supplying rural areas with means of production, with processing the output produced in rural areas, with delivering that output to the consumer, and a number of other branches. The theoretical concept of forming an agroindustrial complex has as its base the Marxist-Leninist teaching on the development of productive forces and improvement in production relations in socialist society; it has been comprehensively illuminated in the resolutions of the party congresses, CPSU Central Committee plenums, the appearances and speeches by L. I. Brezhnev, General Secretary of the CPSU Central Committee and Chairman of the USSR Supreme Soviet Presidium, and in works by Soviet scientists who have worked out the methodological principles of the planned, proportional development of the branches of this economic system and the most important problems of interbranch and intrabranh integration.

Beginning with the March (1965) CPSU Central Committee Plenum, the Communist Party of the Soviet Union has adopted a policy of intensifying agriculture, the speaker said. Attention was turned first to accelerated development of production of the means of production for this branch. In Moldavia, agricultural machine building has grown nine-fold in the years since then, seven-fold more electric power has been released to rural areas, and the amount of irrigated land has more than tripled. Economic relations between the state and agricultural enterprises have been regulated. Purchase prices for agricultural output have basically been brought into line with socially necessary expenditures of labor on its production. As a result, the availability of capital to Moldavian farms has increased 4.3-fold and the amount of power available to labor has increased four-fold. Such rapid growth in productive forces, foremost through technical means of production, has led to radical qualitative transformations in the organizational structures and economic relations in republic agriculture. It has taken up the path of large-scale production concentration accompanied by a rise in the level of labor industrialization, deepening farm specialization, growth in production efficiency and in other qualitative indicators. These radical changes in the agrarian sector in Moldavia have found their concrete embodiment in interfarm cooperation, agroindustrial integration, direct cooperation between science and production, fundamentally new forms and methods of production management, economic regulation and the more complete solution of social problems in rural areas.

In many branches of agriculture, the production of optimum amounts as dictated by current industrial technologies can be created only through interfarm cooperation, and this is important foremost for the cooperative sector, where farms have for many years been developing in isolation and under different conditions, resulting in the appearance of large differences in their economic status and amount of equipment available. It is for good reason that it was precisely the kolkhozes which became the centers of interfarm cooperation and that the sovkhoses were subsequently joined to them.

Interfarm cooperation began in Moldavia in 1954 with the construction associations, and in 1955-1960 this process came to encompass stockraising, feed production and other branches. All 395 republic kolkhozes currently participate in interfarm cooperation in various branches of production. They have created using their own efforts and means upwards of 300 interfarm enterprises, associations and complexes with fixed assets of 1.3 billion rubles. In 1979, some 42 percent of the output produced in the kolkhoz sector was generated based on these assets, which also accounted for 40 percent of total profit, 94 percent of the mechanized work done in farming and 93 percent of the construction.

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The bulk of the grain, sugar beets and sunflower grown in the republic is raised on specialized kolkhozes and sovkhoses on large fields using intra- and interfarm crop rotations and industrial technologies. Now just six rayons grow 600,000 of the 1,200,000 tons of vegetables produced in Moldavia. These figures show how high the level of specialization is in the republic, not just of interfarm formations, but of the farms themselves. In Moldavia, many farms produce 30-35 or even 40 thousand tons of vegetables on 2-3 thousand hectares of land.

Interfarm industrial orchards with large refrigeration and packaging enterprises and packing shops have been created in 23 of the 37 rayons. Such orchards are incomparably superior to the old orchards. The fruit harvests in them reach 500-600 q/ha.

Feed production is concentrated basically in special interfarm agroindustrial associations with irrigation systems and processing plants which manufacture mixed feeds, single-purpose feeds and biologicals.

Integration along the line of interkolkhoz enterprises and associations was completed with the creation of the Republic Kolkhoz Council to manage the entire cooperative sector.

Speaking about the successfully functioning integrated production facilities which have evolved, I. I. Bodyul dwelt in more detail on the activity of the rayon mechanization and electrification interfarm associations, large technical formations which determine the level of agricultural management.

The speaker informs us that the transition to such associations was dictated first of all by the necessity of eliminating inequality in the availability of equipment to farms, of creating identical opportunities for them to use the achievements of scientific and technical progress, of lowering expenditures on mechanized work, of introducing industrial technologies into farming. It took five years, from 1973 through 1978, to concentrate technical means in Moldavian agriculture, resulting in a 39 percent increase in the daily output per reference tractor during the 3-4 years the bulk of the associations created have been operating, a 40 percent increase in shift output and an 11 percent increase in annual output. Fuel expenditure per reference hectare has been cut by 19 percent, which has enabled us to save 260,000 tons of fuel, an amount nearly equal to the annual fuel demand in the Moldavian kolkhoz-cooperative sector. The net cost of mechanized work has dropped significantly. Premature machinery write-offs have decreased, equipment orders have been put in proper order and equipment acquisition is being done in accordance with the demands of technical progress, which has yielded a large savings in capital formation.

The rayon farm mechanization associations are obligated to use on their fields fundamentally new individual technologies when growing grain, feed, vegetables and commercial crops and perennials. People are being freed from manual labor. Repetition of mechanized jobs is being reduced considerably, which facilitates improving soil moisture retention and reduces wind and water erosion.

Now, nearly all operations needed to produce practically all farm products can be done by machine operators. In this regard, crop yields and produce quality are higher than before. Such is the reality of today's Moldavia.

Continuing, I. I. Bodyul cited a number of concrete examples which support that thought. He noted, in particular, that the most important consequence of the use of

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industrial technologies is rapid labor productivity growth: during the time the associations have been in existence, labor expenditures on grain production have decreased by 35 percent, on vegetable production -- by 43 percent, on grape production -- by 52 percent, and on alfalfa production -- 1.5-fold. In republic "Kolkhozhivprom" associations, each worker produces an average of 26,000 rubles worth of output, and each produces 100,000 to 15,000 rubles worth in a number of stockraising complexes. In orchard associations, each worker produces an average of 45,000 rubles worth of output per year, 50,000 to 60,000 rubles worth in the best ones. On the whole, labor productivity in Moldavian agriculture had increased by 12 percent in 1979 as compared with 1978, by 16 percent in the agroindustrial sector; labor productivity growth during the first four years of the 10th Five-Year Plan ensured a savings of the labor of 326,000 persons in this sector.

Our agriculture, I. I. Bodyul continued, has entered an intensive phase of its development in which the famous Marxist thesis that the productivity of farming must in time be increased relatively faster than the productivity of industry will be confirmed in practice.¹ The material-technical base of developed socialism is accelerating this process. On many of the integrated farms of Moldavia, labor productivity is growing faster than it is in industry, and it is exceeding labor productivity in industry both relatively and absolutely.

Interfarm cooperation opens up the possibility of equalizing the economic and social conditions of kolkhoz and sovkhos development, the working and living conditions of the rural population. It brings closer the levels of return on capital investment, on the use of scientific and technical achievements, and enables us to move on to equal pay for equal work throughout the cooperative sector. Interfarm cooperation leads to improvement in distribution relations and yields improved proportions between consumption and accumulation.

Another important question on which I. I. Bodyul focused the attention of those present was the creation and operation of agroindustrial associations and enterprises. That process which Marxists-Leninists view as one of the most basic tasks of the socialist revolution, to eliminate the opposition of urban and rural areas, is being developed on the basis of agroindustrial integration, he said. There is no place for bureaucratic disconnectedness in agroindustrial enterprises and associations; they ensure intelligent proportions in the production and processing of raw material, in the release and marketing of finished products. Being part of a single complex together with farming, industry has a positive impact on it, and especially through its higher technological discipline, better planning, cost accounting and scientific labor and management organization.

In Moldavia, as throughout the country, agroindustrial synthesis occurs foremost in the state sector of agriculture, with its national form of ownership. Sovkhos-plants are the initial organizational-economic form of uniting farming with industry. They arose in Moldavia in the course of improving the production, economic and contractual relations between sovkhoses and industrial enterprises, in the process of working out the interaction of both parts of a unified production cycle. By now, all Moldavian sovkhoses have acquired new qualities thanks to production specialization, concentration and integration: 245 of them have combined with industrial enterprises to become sovkhos-plants; 125 sovkhoses have joined with branch scientific research

1. See: K. Marx and F. Engels, "Soch." [Works], Vol 26, Part II, p 115.

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institutes to create 13 scientific-production associations, and sovkhos-tekhnikums -- agroindustrial-type study-production complexes -- have been created on a base of the 15 best farms.

The sovkhos-plants have advanced far along the path of specialization. They have consolidated production and moved further into integration: they have, on their own initiative, taken the next step in concentrating production by forming territorial agroindustrial associations to produce 30, 40, 50 million rubles or more worth of output. Forty such Moldavian associations acting as independent cost-accounting units include, in addition to the sovkhos-plants, industrial enterprises, transport, construction and repair organizations, material-technical supply services, accounting, marketing, social-development and other services.

Planned agroindustrial synthesis begins in the cooperative-kolkhoz sector only with the appearance and development of interfarm cooperation, which created the conditions necessary for this. Such synthesis is already being carried out in feed, vegetable, fruit and tobacco production.

I. I. Bodyul described the major state agroindustrial systems -- "Moldplodoovoshcheprom" union-republic association, "Moldvinprom," "Moldtabakprom" and the essential-oils association. Together, they produce 2.6 billion rubles worth of output, including 500 million rubles worth of agricultural output, or 20 percent of the agricultural output of the republic's public sector.

As concerns the 13 scientific-production associations, their creation was necessitated by the need for an organic synthesis of science and production, for obtaining a fast, effective return on scientific developments, since many of the ties between science and production which had evolved in the past turned out to be ineffective under the new conditions. The scientific-production associations include branch scientific research institutes as the lead, supervising subdivisions, specialized sovkhoses, design bureaus, pilot plants and enterprises to process output, study centers and others. These associations work out the organizational, scientific-technical and economic problems of their own branches, check the most efficient farming and stockraising methods on large tracts on their own farms, design vehicles and machinery and are involved in selection, livestock breeding, testing new varieties of agricultural crops, raising and supplying commercial farms with seed, plantings and purebred livestock.

The speaker told of several republic scientific-production associations such as the "Progress" (reproducer purebred hogs) and "Dnestr" (vegetable growing, selection, seed production and developing industrial technologies in this branch).

Fundamental research results are acquiring increasing importance in solving the urgent problems of the agroindustrial complex, I. I. Bodyul emphasized. To best organize and raise the level of this research, we must finally overcome once and for all the departmental disconnectedness of academic and branch science. Achieving this goal will facilitate concentrating the efforts of the Moldavian SSR Academy of Science and the scientific-production associations on solving the 19 most important comprehensive problems. A Republic Interbranch Scientific and Technical Problems Coordination Council has been created. Its activity is based on the target-program method of planning, financing and organizing the joint use of scientific equipment and production assets.

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The speaker said scientists of the USSR Academy of Sciences institutes are participating directly in the creation and application of new technologies in republic farming and industry, in working out the economic and legal questions which arise in connection with the organization of agrarian, agroindustrial and scientific-production associations. They contribute greatly to analyzing, evaluating and forecasting integration processes, in training specialists in the new directions of development of productive forces and improving production relations. The all-union conferences held in Moldavia by USSR Academy of Sciences institutes to examine the scientific bases and principles of organizing agroindustrial complexes and associations, the socio-economic, sociopolitical and legal problems of drawing the two forms of socialist ownership closer to one another and on that basis improving agricultural leadership, the social aspects of rural development at the stage of mature socialism, legal problems of cooperation and other matters have become a successful organizational form for resolving these tasks.

The "Moldsel'khozkhimiya" state-cooperative association has become an important, integral part of the republic agroindustrial complex. As distinct from other regions of the country, this particular Moldavian production organization is responsible for the end result of farming chemization. This results from the fact that, prior to its formation, agricultural chemistry centers had evolved and were operating successfully as part of the rayon mechanization associations. They were also a production component of the "Moldsel'khozkhimiya," which is concerned not only with soil research and fertilizer delivery and toxic chemicals, but also with their application and with the cultivation of sown areas so as to protect them from pests and diseases and to protect the environment from pollution.

Like processing industry, the sphere of production services to the agrarian sector is being developed under a long-range unified plan for the entire Moldavian agroindustrial complex through 1989. It defines the basic stages of division of labor and production concentration for various economic systems, the schedules for creating agroindustrial assets and recompensing their cost, rates of labor productivity growth, steps to develop collectives socially, and so on. All the scientific research institutes of Moldavia, including those of the Academy participated in developing and discussing this long-range plan, making recommendations on distributing republic productive forces, on the economic specialization of individual zones, the efficient use of labor resources, and other matters. The proposals of the institutes, scientific-production associations, party and soviet agencies were reviewed in 1974 by the Moldavian Communist Party Central Committee Plenum and annual and five-year plans for developing the republic agroindustrial complex are now being drawn up based on that long-range plan.

So, strong cooperative and agroindustrial systems relying on state, kolkhoz and mixed, state-cooperative, forms of ownership have grown up en route to integration in Moldavia. Among the most serious changes caused by this process is the reduction in the number of people employed at agricultural labor, given a simultaneous increase in labor productivity in farming and an increase in the gross production of agricultural products: since 1970, the average annual number of workers in the public sector in Moldavia decreased by five percent, labor productivity rose by 47 percent, and gross output rose by 42 percent.

An important social result of these changes is that the labor resources freed in agriculture move to industrial, transport, construction and other enterprises in rural

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areas, to the sphere of municipal and personal services. Thus, the rural employment structure has been improved. Now, more than a third of the workers and 13 percent of the employees (engineers and technicians) in Moldavia live in rural areas. It is to the point to recall here the Marxist thesis that the level of development of the nation's productive forces is revealed all the more graphically in the degree to which the division of labor is developed in it,¹ the speaker asserted. Organizing social production on principles of agroindustrial cooperation and the creation of industrial, agroindustrial and large integrated enterprises in rural areas leads not to the accumulation of residents in large cities, but to their substantiated resettlement throughout the republic and to an efficient distribution of productive forces.

Of course, I. I. Bodyul said, certain difficulties were encountered and overcome in the course of implementing all these complex transformations, and there continue to be difficulties, in particular, those caused by the fact that we have not yet worked out final criteria and norms for farm participation in interfarm and agroindustrial cooperation or the most effective economic relations for integrated production facilities. Republic organizations are studying and solving these and other problems, but they will doubtless require the help of scientists in this work.

In this connection, I. I. Bodyul touched briefly on several pressing tasks of science.

Practice expects of the scientists working on the problem of increasing foodstuffs production a great deal of attention to working out the genetic bases of increasing the potential of agricultural crops. The importance of this research increases manifold with the application of industrial technologies, intensive fertilizer applications, artificial irrigation and higher farming standards in agriculture. The maximum yields of many varieties now being used are too restricted; they are not in a position to use the opportunities of high soil fertility, I. I. Bodyul noted.

Modern intensive production in the countryside also needs a scientifically substantiated environmental use and protection strategy. Suffice it to recall the pressing necessity of restoring the natural biological equilibrium upset by the not always justified use of pesticides. Many insect pests adapt rapidly to toxic chemicals, leading to increased pesticide doses and to the use of more potent chemicals which are dangerous to plants, animals and man.

Practice also expects of the scientists a thorough generalization of the new forms and methods of management at the present stage of development of the Leninist cooperative plan in order to achieve a high return on the large investments in our country's agroindustrial complex. Many pressing questions need discussion from the positions of economic and other social sciences, and particularly from legal science. For example, we need to work out and issue a regulation on the agroindustrial and scientific-production enterprise in agriculture.

In conclusion, I. I. Bodyul expressed heartfelt gratitude to the USSR Academy of Sciences Presidium for the opportunity granted him to speak at this meeting and assured those present that the party, soviet and economic agencies of Moldavia and the republic workers will persistently make practical use of scientists' recommendations in the area of production technology and organization and will do all they can to successfully actualize party social policy and to greet the 26th CPSU Congress in a worthy manner.

1. K. Marx and F. Engels, "Soch.," Vol 3, p 20.

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Questions were asked the speaker.

Academician P. L. Kapitsa asked how comparable the economic results achieved in the agroindustrial sector of the Moldavian economy are to the indicators of the developed capitalist countries. I. I. Bodyul answered that the intensiveness of republic agriculture is already quite high and will continue to increase. Some 113,000 rubles worth of output is being produced per 100 ha of farmland. Wheat yields were 39.2 q/ha on all areas sown in the republic in 1977, and they were 40.5 q/ha in 1978. On average in the developed capitalist countries, they were 21.1 and 24.1 q/ha for these years, including 20.6 and 21.3 q/ha in the USA, 19.6 and 20 q/ha in Canada and 22.3 and 26.5 q/ha in Italy. These figures indicate that our agriculture has available to it sufficient opportunities for raising the intensiveness of farming to the level of world achievements.

As concerns the productivity of rural labor, Moldavia is still inferior to the best world achievements, although labor expenditures per unit of output are quite comparable to Western farms on many of our farms, especially at integrated interfarm production facilities. This in turn testifies to the fact that we are not yet making full use of the achievements of scientific and technical progress and are slowly revealing the potential opportunities for integrated production.

Academician A. M. Prokhorov's question dealt with the struggle against losses of agricultural output in production and delivery to the consumer. I. I. Bodyul answered that much is indisputably being lost, but the state and the kolkhozes have already done much to ensure the safe storage and prompt processing of agricultural produce. We must achieve a situation in which these products reach processing enterprises and the trade network more evenly. I. I. Bodyul added that, in connection with the growth in production and the introduction of industrial technologies, the question of losses is now somewhat different than before: a certain percentage of losses is justified technically and economically. It is important that this percentage be based on high crop yields, so that loss will not have a substantial impact on the economic growth of the farms.

To Academician N. M. Zhavoronkov's question about how mineral fertilizers are being used in Moldavian fields, the speaker replied that agrochemical charts are used to program yields when they are applied. It is precisely the combining of mechanization and chemization which has enabled us to work using such charts, to economically equalize land fertility by applying mineral and organic fertilizers as a function of the quality and properties of specific soils and assigned yields.

During discussion of the report, Estonian SSR Academy of Sciences Corresponding Member M. L. Bronshteyn told of fundamental socioeconomic research being done by the Estonian Academy of Sciences on agroindustrial cooperation problems in order to increase agricultural effectiveness. As this research has shown, the effectiveness of capital investments in agriculture can be increased by a third just through progressive changes in the production structure, which is very important now, given the enormous increase in the level of investment and existing limitations on resources. In order to solve this problem, Estonian SSR Academy of Sciences institutes, the Ministry of Agriculture and VUZ's, with the help of the Central Institute of Mathematical Economics and Institute of Economics of the USSR Academy of Sciences and VASKhNIL [All-Union Academy of Agricultural Sciences imeni V. I. Lenin] subdivisions, are working out a long-term target program which will permit the more effective use of the republic's available agroeconomic potential through balancing growth factors.

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But in order to actualize the program, it is necessary to effect an interbranch and territorial maneuver, changing the structure of agroindustrial complex management and the interaction of its component parts. Here, we have much in common with the Moldavian experience, but specific Estonian conditions are taken into account. The republic has begun the process of creating territorial agroindustrial associations which include all agricultural and processing enterprises. We are working out the economic mechanism which will ensure the responsibility of all links of the complex for end results and resources use. The experiment is being conducted in the Vil'yandiiskiy and Pyarnuskiy rayon agroindustrial associations. We are working out the structure and program for a republic-level agroindustrial complex which will be comprised of branch and territorial links.

Academician N. P. Fedorenko, Academic Secretary of the USSR Academy of Sciences Economics Department, analyzed in his speech the structure of the USSR agroindustrial complex and concluded that there are still many unused reserves here, foremost in the area of improving the economic mechanism -- the system of incentives, cost-accounting relations, internal price formation, and so on. He pointed out the progressive nature of reducing the number of people employed directly in agricultural jobs and of a relative increase in the number employed in preparing agricultural production and in processing and transporting its output. In this connection, N. P. Fedorenko emphasized the great effectiveness of using economic-mathematical methods in agricultural science and practice and assured the Presidium of the USSR Academy of Sciences that the Economics Department and its institutes will render the republic academies of sciences every assistance needed in studying problems of agroindustrial cooperation.

Academician-Secretary of the VASKhNIL Economics Department A. A. Nikonov said that the All-Union Academy of Agricultural Sciences imeni V. I. Lenin is paying a great deal of attention to the large-scale experiment reported on by I. I. Bodyul at the meeting. Interkolkhoz cooperation and agroindustrial integration and industrial systems for producing individual products and scientific-production associations -- all are themselves major experiments. But the whole point is that they are being carried out comprehensively, as a system.

Under present conditions, A. A. Nikonov thinks our agriculture suffers most from unregulated economic relations among the individual spheres of the agroindustrial complex. Now 85 percent of the fixed assets of our country's agriculture are of industrial origin and more than 60 percent of the agricultural output goes for industrial processing. The experiment being discussed is therefore of both regional and union-wide importance. In view of these circumstances, the VASKhNIL has prepared new methods of researching systems of running agriculture. But there are questions which can be decided only jointly with the USSR Academy of Sciences. They include the problems of increasing the effectiveness with which natural resources are used while at the same time being certain to protect them.

The Moldavian SSR has won a solid reputation as a national laboratory for developing and checking practically new and progressive forms of economic development on an integral basis, declared USSR Academy of Sciences Corresponding Member Ye. I. Kapustin. Integration is being done here very broadly and thoroughly, horizontally and vertically, which is not often the case in other republics and other regions of the country.

Ye. I. Kapustin reviewed in his speech the cost-accounting program on integrated farms and stressed the necessity of developing it under the new conditions.

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Academician M. S. Gilyarov, Academic-Secretary of the USSR Academy of Sciences Department of General Biology, devoted his speech to certain biological problems which have arisen in connection with the concentration and specialization of agriculture. He focused attention in particular on the fact that the intensive chemical treatment of large tracts of land in order to destroy insect pests destroys foremost their active enemies, the entomophags and plant pollinators, which consequently undermines the foundation for raising the yields of agricultural plants. USSR Academy of Sciences scientists were convinced of this when they visited a huge apple orchard near Tiraspol' during joint meetings between the USSR Academy of Sciences Department of General Biology and the corresponding department of the Moldavian SSR Academy of Sciences.

No [other] country has such huge areas selected in accordance with the requirements for growing particular crops as does the Moldavian SSR, said M. S. Gilyarov. But elsewhere, as for example in Belgium and the Soviet Baltic republics, even small fields are separated by tree windbreaks which protect the land from wind erosion and support complexes of useful organisms. One of the pressing tasks of science and practice is to properly organize the new landscape being created in Moldavia. This question was investigated in depth during the course of joint work by Moldavian and Moscow scientists, resulting in recognition of the vital necessity of intensifying research in the field of biogeocenology, of studying the ecological features of various groups of organisms in Moldavia with consideration of the huge natural and social experiment being conducted there.

M. S. Gilyarov spoke out against the still-prevalent opinion that the existence of such one-crop systems as corn, for example, removes the necessity for crop rotation given intensive chemical treatment of the fields. It takes 10 years, but the negative aspects of a one-crop system do appear, and inescapably, since the biological processes in the soil are disrupted. Moldavian soils are fertile, continued M. S. Gilyarov, but their humus content is dropping. How can this be combatted? Humus can be restored by applying not only mineral fertilizers, but also, and necessarily, organic fertilizers. There are quite a few methods available for preparing fertilizers from the most varied organic refuse, an excellent example being provided by the Baltic states, where humus content has risen in recent years in the fields.

The intensification and expansion of work on comprehensively studying the natural bases for creating the new agroindustrial complexes are very important in organizing these complexes correctly. The Moldavian Academy of Sciences is not alone in this. Moldavian biologists have long been in contact with biologists of the USSR Academy of Sciences and these ties will be developed further, in particular as joint work is done to study soil fertility retention and the use of biological methods of combatted agricultural pests.

USSR Academy of Sciences Corresponding Member V. N. Kudryavtsev spoke of imperfections in the legal regulation of agriculture and of the necessity of bringing the system of legal documents into line with its actual structure. There is no overall statute for the so-called sovkhos-plant, and there are 740 such associations in the Ministry of Food Industry alone. There is no statute for the republic and union agroindustrial associations and we lack many other laws regulating their activity. The experience available in Moldavia is based not on legislation but on enthusiasm, so to speak, V. N. Kudryavtsev noted. This experience has not been generalized legally. V. N. Kudryavtsev proposed appropriate supplements to the draft decree of

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the USSR Academy of Sciences Presidium on the question under discussion, noting the complexity and diversity of the legal problems of agroindustrial formation in different regions of the country.

Academician M. A. Styrikovich spoke about the tasks of the fuel and energy supply to agriculture now and in the future. He thinks anaerobic fermentation of agricultural wastes, and foremost of stockraising farm wastes, can yield a large impact, primarily in making fuller use of organic fertilizers and in terms of sanitation, but also in obtaining biogas [methane] as a by-product to meet the energy needs of agricultural production. The national economic effectiveness of processing agricultural wastes has increased greatly in recent years in connection with the sharp increase in the cost of natural gas and petroleum products.

Academician A. P. Aleksandrov, President of the USSR Academy of Sciences, supported this idea and concluded discussion of the report with a proposal that a number of specific new sections stemming from speeches by meeting participants be included in the Presidium draft resolution.

The resolution adopted by the USSR Academy of Sciences Presidium noted great successes in developing the Moldavian agroindustrial complex on the basis of modern scientific achievements. The scientific-production associations, which have created conditions for the rapid actualization of scientific ideas and which have established close ties between academic and branch scientific institutions, have become a concrete form of ties between science and production, the resolution states. Republic scientific forces are being concentrated on working out pressing problems of developing the agroindustrial complex, accelerating the rates at which scientific achievements are introduced into practice, improving management, and strengthening the experimental-production base of scientific institutions.

Given a successfully developing synthesis of branch science and production, the role of fundamental research in the fields of genetics, ecology, physiology, biochemistry, biophysics, economics and law in resolving tasks of the intelligent use of natural resources and environmental production, creating the bases for an adaptive system of agricultural production and management, ensuring stable agricultural crop yields under unfavorable weather conditions, and so on, has been precisely defined. The results of multipurpose work by branch and Academy institutes are being increasingly applied in the formation of large-scale orchards and vineyards, in introducing interfarm crop rotation and developing integrated methods of protecting plants from pests, diseases and weeds, preventing the negative consequences of hypodynamic stress in livestock kept on farms, and so forth.

The Moldavian SSR Academy of Sciences and scientific-production associations of the republic Ministry of Agriculture have joined forces to carry out a number of comprehensive programs, each of which anticipates the development of production end processes for specific types of agricultural output.

Development of the republic agroindustrial complex will demand improvement in the coordination of scientific research. A republic Interbranch Scientific and Technical Problems Coordination Council led by the Academy president has been created under the Moldavian SSR Academy of Sciences. The council notes the most important regional problems, approved by the republic government, and monitors their subsequent development.

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Continued improvement in the interfarm cooperation and agroindustrial integration process and increasing their effectiveness put forward a whole series of fundamentally new scientific tasks which cannot be solved by a single republic: we must involve institutes of the USSR Academy of Sciences, the republic academies of sciences and various ministries and departments.

The Academy of Sciences Presidium resolved to instruct the Physical-Technical and Mathematical Sciences Section, the Chemical-Technological and Biological Sciences Section and the Social Sciences Section of the USSR Academy of Sciences Presidium to prepare proposals on the broader participation of corresponding institutes of the USSR Academy of Sciences in researching problems of the organizational design of the agroindustrial complex within the framework of a unified national economic complex; optimizing the production structure of interfarm and agroindustrial enterprises; improving the planning and management systems and the economic and legal interrelationships within the entire economic mechanism of the country's agroindustrial complex; improving legal provisions on agroindustrial entities; managing social processes in the modern village; creating new methods of plant and animal selection and strengthening the legal protection of selection achievements; perfecting the system of agricultural machinery, improving their reliability and durability; zoning the country's territory in order to distribute agricultural crops in optimum natural zones with consideration of environmental protection requirements, and so on. The USSR Academy of Sciences commissions on the scientific bases of agriculture are to generalize the sections' proposals and submit them for approval to the leadership of the USSR Academy of Sciences Presidium.

The resolution approved the activity of the Moldavian SSR Academy of Sciences to coordinate scientific research by Academy institutions and republic scientific-production associations aimed at resolving pressing tasks of further developing the republic agroindustrial complex. It was proposed that the council to coordinate the scientific activity of the union republic academies of sciences study the experience of the Moldavian SSR Academy of Sciences in conducting and purposefully coordinating scientific research in the area of the agroindustrial complex and to submit material generalizing this question to the next Coordination Council session for discussion.

The resolution contains Moldavian SSR Academy of Sciences recommendations that scientific research be intensified to solve problems of applied genetics, technical microbiology, power engineering, optimizing the production structure and improving the legal regulation of relations and management in interfarm and agroindustrial enterprises and associations, evening out standards of living and equalizing the socio-economic and legal status of kolkhoz members, workers and employees, city and village residents, and so on, the biological activeness of soils and humus dynamics to prevent a reduction in soil humus content, improving soil quality and intensifying humus formation by biological methods, and combatting pests by using biological and integrated measures.

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REGIONAL

BENEFITS OF RIVER REVERSAL OUTLINED

Tashkent ZVEZDA VOSTOKA in Russian No 8, 1980 pp 5-16

[Article by Anatoliy Yershov: "People, Water and Economics"]

[Text] A bearded peasant holding a rifle was talking with a stylishly dressed gentlemen.

"Let me tell you, my fine gentlemen, that we will definitely take the land in our own hands. Definitely! And we will rebuild everything."

"Will you dig up mountains?"

"Why sure. If they are in the way we will dig them up."

"And will rivers flow backwards?"

"The rivers will flow where we tell them to flow."

This is a conversation that was recorded by A. M. Gor'kiy in Petrograd in 1917. I recalled it at the all-Union conference of economic scientists from higher educational institutions in the country which was held for several days in Tashkent. The scientists at the meeting were focusing their attention on a problem whose essential point is precisely expressed by the words: "Turning part of the flow of the Siberian rivers to run to Central Asia." Thus, the people who became rulers of the land in October 1917 are carrying out their dreams.

Throughout the conference I kept thinking, "We live in amazing times." How can one not be amazed? The subject, after all, was the greatest such project in world experience. No other country of the world yet has had the courage to undertake the transformation of nature on such a magnificent scale.

It was an economic conference, so of course the debate at it centered chiefly on issues related to economic development and social consequences of transferring part of the northern waters to the south.

The technical side of things also struck the imagination, of course. To build a canal roughly 2,300 kilometers long is a very difficult job. It is

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as hard as the challenge of building the BAM [Baikal-Amur Mainline]. Incidentally, it is just as expensive too. Building the canal will require a whole fleet of powerful earth moving machines and various other unique equipment. To provide all this machinery it will be necessary to rebuild some enterprises or build special plants, to say nothing of the construction industry enterprises which will certainly have to be organized.

Nonetheless, for me the most interesting thing was the social aspect of carrying out this vast project.

Central Asia is a land of incalculable wealth. We who live here have become accustomed to this statement. But let us try evaluating the potential of our region not from an emotional standpoint using ringing words, but from an economic standpoint, relying on dry figures. This is what the participants at the conference did.

So, if we look at a physical map of Central Asia and southern Kazakhstan, we see the predominant colors are brown and yellow: mountains, deserts, semideserts, and arid steppes. Green, the color of oases, occurs only along the river valleys and canals. The area of irrigated land in those places is only about 7 million hectares. But scientists have calculated that more than 50 million hectares is suitable for raising crops.

Another aspect of our wealth is the warm climate. The length of the frost-free period here ranges from six to nine months and summer air temperatures permit the ripening of heat-loving crops such as cotton, tobacco, rice, soybeans, grapes, melons, and many types of subtropical fruits.

I cannot refrain from citing some figures here: one hectare of irrigated land produces 1,340 rubles of output compared to 140 rubles received from a hectare of unimproved land.

"Well, then, what is the problem?" the reader will ask and say, "Let's get to work and develop and irrigate new lands if it's so profitable in our region!"

Of course, that is what we are doing. At the dawn of Soviet power V. I. Lenin wrote the following: "There is still unused land. Excellent land, which must be plowed!" Communists have made Lenin's dream their program of action. Since the first years of the socialist Fatherland plans have been written to develop the virgin lands and they are being brought into cultivation. In the 1950's a project unprecedented in human history began to develop the virgin land. At this time the Soviet peoples joined their efforts to transform the virgin land region of Kazakhstan. At almost the same time in Uzbekistan we began to bring back into production lands which had not been used for centuries.

"At about the same time," is how it seems to us today when that heroic beginning is somewhat removed in time. But to be accurate, the development of new land on a broad scale in our republic began under the direct impact of the virgin land transformation in Kazakhstan.

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Older and middle-aged people remember this well. It was 1956. The newspapers ran the decree of the CPSU Central Committee and USSR Council of Ministers on development of 300,000 hectares of land in the Golodnaya Steppe. The enthusiasm of young people was unprecedented. The republic Komsomol sent the best and most worthy of them for the assault on the previously uninhabited steppe region.

The years passed. The Golodnaya Steppe, which is often called the little sister of the great Virgin Lands, became an oasis of economic importance comparable to the natural oasis, the lush, Fergana valley! The sovkhoses built on the new irrigated land, after 1956 that is, grew and in their existence have sold the state more than 4 million tons of raw cotton. In this way they have long since repaid the cost of their development.

But people are not satisfied with past achievements. A new all-Union shock Komsomol construction project called the enthusiasts. This was the Karshinskaya Steppe. Its young sovkhoses have already harvested their first million tons of cotton. In the future they will harvest this much every year, and it will be the most valuable kind of cotton, fine-fibered.

But the virgin lands of Uzbekistan do not end with the Golodnaya or the Karshinskaya steppes. Today this project cannot be imagined without developing land in the Central Fergana region, Surkhan-Sherabad valley, the Dzhizakskaya Steppe, and the lower regions of the Amu-Dar'ya in Karakalpakistan. It is a vast and heroic idea!

During the Ninth Five-Year Plan more than 510,000 hectares of virgin lands were brought into agricultural use in Uzbekistan. During the 10th Five-Year Plan another half million hectares are to be irrigated. This means 1 million hectares in a decade! Where else, in what other country, is work going forward on such a scale?

And these are the reasons for the pride that every Soviet citizen felt when reading Leonid Il'ich Brezhnev's book "Tselina" [The Virgin Land].

How portentous that this book was published in 1978. That was the year in which our country celebrated the 60th anniversary of Lenin's decree on irrigation of lands in Turkestan and it was just before the 25th anniversary of the beginning of development of the virgin lands in Kazakhstan.

It is difficult to grow cotton anywhere. But it is especially hard on virgin lands. This land takes a great deal of care. It has to be watered and made fertile. But there is nothing that the virgin lands developers will not do. They conquered the deserts of our region and once barren lands became flourishing oases. One-third of the cotton of Uzbekistan today comes from the virgin lands!

As you see, the developers of our steppes and deserts have done brilliantly. And they are ready to continue that in the future. But, and this will be the subject of discussion, everything ultimately relies on water. The reserves of the Syr-Dar'ya will be fully exhausted by 1985. By the 1990's the reserves of the region's largest river, the Amu-Dar'ya, will be

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depleted. Underground sources may help somewhat, of course, but they are also exhaustible. Then what will happen?

Water is an amazing substance. You cannot substitute for it with supplementary doses of mineral fertilizer, chemicals to control field pests and weeds, or any other chemical products! I cannot help remembering here the remarkable words of Saint Exupery, who came to know the true value of this marvelous liquid when his airplane crashed in the Sahara. "Water! You have no taste, no color, and no odor. It is impossible to describe you. People enjoy you without realizing that you are necessary for life. You are life itself. You fill us with a joy that we cannot explain. You return to us the strength that we have lost. The dried-up springs of our heart begin flowing again by your grace."

The inhabitants of the arid regions of the world know the value of water very well. Central Asia is one of those regions. The peoples of our region wisely say: "Where water ends, life ends," and "It is not land that gives life, but water."

Indeed, the inhabitants of the arid zone know the true value of a drink of water. Where there is no water we have sun-scorched desert. The watered land is bountiful; oases flourish, cities grow, and the economy develops. It would, perhaps, be no exaggeration to say that the level of development of the Central Asian republics can be evaluated by the level of development of their water management systems.

The area of irrigated land in Uzbekistan has doubled during the years of Soviet power. In this same time 20 large reservoirs, real manmade seas, have been built. Among them are Charbaks koye, Andizhanskoye, Kattakurganskoye, Yuzhno-Surkhanskoye, Talimarzhanskoye, and Pachkamarskoye. Their total volume exceeds 4.5 billion cubic meters. And this is still not all; in addition, reservoirs in the mountains of neighboring republics also "work" to irrigate the fields of Uzbekistan. Among them are such large reservoirs as Toktogul'skoye and Nurekskoye. The blue ribbons of canals have formed a dense network covering the oases of the republic. These man-made rivers are more than 150,000 kilometers long. Those who like "astronomical comparisons" could circle the globe four times with these canals. No capitalist country can boast of such up-to-date and sophisticated irrigation and land improvement structures as Soviet Uzbekistan. That is why, incidentally, people from around the world come to study irrigation here.

But no matter how we improve and refine our water management system, we are approaching the time when it will be necessary to say: "Moisture reserves have been exhausted."

There is just one thing to do: transfer water to our region from far away, for example from Siberia where vast regions suffer from a surplus of moisture. It is not accidental that the people there say, "Water is disaster," and "Always expect trouble from water."

But serious background studies must be done before undertaking such a project. This work is being done by associates at the Institute of Water Problems of the Academy of Sciences USSR, the Institute of Geography of the

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Academy of Sciences USSR, the Council for the Study of Productive Forces of the Academy of Sciences of the Uzbek SSR, the Tashkent Institute of the National Economy, the Central Asian Scientific Research Institute of Irrigation, the Soyuzvodproyekt [All-Union Association for Water Management Planning] Association, the Soyuzgiprovodkhoz [All-Union State Order of the Labor Red Banner Planning-Surveying and Scientific Research Institute of Water Management Construction] Institute, and many others, a total of 120 scientific and planning institutions in all. The purpose of the conference in Tashkent was to hear reports on the results of their work.

The actual idea of transferring Siberian water to Central Asia arose in the last century. In 1868 Ya. G. Demchenko, an agronomist from Kiev, submitted a report memorandum to the Russian Geographic Society entitled: "Flooding the Aral-Caspian Lowland To Improve the Climate." The problem raised in the memorandum was not a pressing one and few people understood it at the time. After all, Demchenko was proposing to improve the climate of a remote frontier of the country. His idea was not evaluated; it could be said it was simply not noticed. Interest in the idea arose only after Great October. In the 1920's and 1930's several projects were proposed to build dams on Siberian rivers and deliver the water to Kazakhstan and Central Asia. The first plans contemplated redistributing the water by gravity-flow. A fundamentally new concept advanced in 1936 proposed using pumps to get over the water divide. In this scheme the flooding of floodplains is greatly diminished. This idea formed the basis for current planning development. It could have begun earlier, of course. But like many other projects, the starting time for implementation of this vast conception was postponed by the Great Patriotic War. But in 1946 the Gidroenergoprojekt [possibly Hydroelectric Power Planning] Institute began preliminary development of the technical side of the problem of reversing the flow of the Siberian rivers to run to Kazakhstan and Central Asia. Small surveys and tests were made. This work was directed by engineer Mitrofan Mikhaylovich Davydov, who had worked here in Central Asia at an earlier time, in 1921-1932, and even then had been infatuated with this bold idea. In recent years the periodical press has written a great deal about the planning work, and it has been called the "Davydov Plan." In reality, of course, a large group of engineers, some 40 people, took part in the work. By 1954 the zealots had collected sufficient material to give an idea of the character and scale of work necessary to carry out this incredible conception. The four-volume work "Irrigatsiya Uzbekistana" [Irrigation of Uzbekistan] by the Academy of Sciences Uzbek SSR defines the result of the exploratory stage as follows: "The results obtained confirmed the possibility of transferring the water by building large hydroengineering complexes."

In the early 1960's at the Central Asian division of the Gidroproyekt [All-Union Planning, Surveying, and Scientific Research Institute imeni S. Ya. Zhuk] Institute I became familiar with a large book whose title page read: "Reversing the Flow from the Ob' River Basin to Kazakhstan and Central Asia." This was one more step toward implementation of the idea. It was then that I began my first report on reversing the flow of the water from north to south. I wrote an account of an imaginary future trip along the canal. Yes, it was imaginary because actually doing it seemed to be far in the future. And now, it appears, we have arrived at this future and will witness the implementation of the plan which not long ago was considered to

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be fantastic. Such are the "giant steps" taken by the Soviet five-year plans, which move our economy ahead at an incredible pace and have converted the most audacious plans into actual oases, cities, scientific laboratories orbiting the earth, or canals of enormous length.

"Carry on scientific research and, on this basis, do developmental work related to the problem of transferring part of the flow of northern and Siberian rivers to Central Asia, Kazakhstan, and the Volga river basin." That was what the 25th CPSU Congress resolved, almost five years ago. Today thousands of people, the most highly qualified specialists in the country in the fields of irrigation, soil science, economics, climate, and others, are putting this party resolution into effect.

A broad panorama of socioeconomic transformations which will occur in our region with the arrival of Siberian water is now open before us. The reports by G. V. Voropayev, director of the Institute of Water Problems of the Academy of Sciences USSR, I. A. Gerardi, deputy chief engineer of the Soyuzgiprovodkhoz Institute, Professor M. Sh. Sharifkhodzhayev, rector of the Tashkent Institute of the National Economy, and representatives of other scientific and planning centers helped participants at the conference see these prospects.

Kuz'ma Ivanovich Lapkin, academician of the Academy of Sciences Uzbek SSR, deputy chairman of the republic Council for the Study of Productive Forces, and one of our leading economists, presented an interesting calculation. Studies made by a collective of specialists under his direction made it possible to determine the economic potential of one cubic kilometer of water used in the fields of the republic. Such a quantity of water makes it possible to get 112,000 tons of cotton, 116,000 tons of vegetables and melons, 41,000 tons of fruit and grapes, 7,000 tons of meat in slaughter weight, 114,000 tons of milk, and 400 tons of silkworm cocoons. In monetary terms, all this output is estimated at 153 million rubles.

But even this is not the complete result; it is only the part that will come directly from agriculture which, as we know very well, supplies raw material to industry. Therefore, the scientists made similar calculations for the industry that processes agricultural raw material. It turned out that each cubic kilometer of water makes it possible to receive 500 million rubles of output from the agroindustrial complex. The researchers calculate that the net income from this amount will be 193 million rubles!

Just the first phase of transferring part of the flow of the Siberian rivers to Central Asia envisions delivering 25 cubic kilometers (or 25 billion cubic meters) of water to our region each year. It is true that part of the water is to be used en route, in Kazakhstan and the RSFSR. Nonetheless, the bulk of it is for our fields and will result in snow-white bales of cotton, rows of sweet-smelling fruit trees, and tasty vegetables.

Further into the future, at the turn of the century, engineers contemplate transferring 60 and even more cubic kilometers of water a year from the north to the south, the equivalent of the entire Amu-Dar'ya. This water

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will undoubtedly produce truly abundant harvests in our fields. They will run into thousands and millions of tons.

But does the value of this output justify the capital that must be invested in construction of the canal and spent for transporting the water? Economists answer: Yes! At the conference they stated that this capital would be repaid in 5-6 years. Even by cautious calculations the repayment period is no more than 10 years.

When speaking of the advantages that one cubic kilometer of water produces, we did not mention another figure. But it is one that should be not just mentioned, but thought about. The number I have in mind is 50,000. This is how many jobs each cubic kilometer of water can provide in our republic. We can properly evaluate the significance of this figure if we remember the high birth rate in our region. As a result of it, it is realistic to expect that the population of Central Asia will double by the turn of the century, while at the same time the growth of population on the average for the country as a whole will be just 22 percent.

We must recognize that this means that without additional sources of water, or to be more specific without transferring part of the flow of the Siberian rivers to our regions, it will be difficult for us to employ in public production all the children being born in our day. The analysis of the economists showed that industrial development alone cannot meet this challenge. In addition, we must take account of the local population's traditional inclinations for agricultural labor. This labor can be provided only if new land is brought into use, and this requires irrigation.

It would be unrealistic to suppose that many local inhabitants want to go and work developing the riches of Siberia and the Far East. A few, of course, will want to tie their destiny to the remote regions, but most of the population of Central Asia is not inclined to migrate. They prefer to remain in customary climatic conditions.

Therefore, from the standpoint of better use of the country's labor resources it is also advantageous to transfer part of the flow of the Siberian rivers to Central Asia.

But possibly the Siberians themselves would be hurt by this operation?

The facts cited at the all-Union conference of economists indicate the opposite. The water that the Siberian rivers will give to the fields of Central Asia is just a small part of their total flow and, therefore, will have little impact on them. After all, the Ob' and Yenisey alone, two of the world's largest rivers, carry roughly 950 cubic kilometers of water a year to the Arctic Ocean! By contrast, the inhabitants of Siberia, by sharing their excess water, will receive a direct benefit from the development of orchard farming and grape growing in the southern regions of the country. According to calculations by Siberian economists, this region must import at least 500,000 tons of vegetables and melons and roughly 1.5 tons of fruit, berries, and grapes from the southern regions, the Ukraine, Moldavia, and Central Asia. Some of the vegetables can be raised in local

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areas using hothouses. It is true that this requires major capital investment and the quality of the output from covered ground is not, of course, comparable to that which we receive from land that is directly heated by the hot southern sun. The calculations of the economists indicate that it would be wise to establish large-scale production of nourishing garden and orchard crops in Central Asia, near Siberia. This would make it possible to save about 500 million rubles a year in transportation costs alone.

Sociologists called attention to an equally important factor: the improvement in supply of fruit and vegetables will help keep workers at development sites in the North. This means that, by giving water to southern fields, we will be more successful in work to use the natural riches of Siberia.

The arrival of large amounts of water from Siberia in Central Asia and Kazakhstan will lead to the irrigation of millions of hectares of virgin lands, provide jobs to millions of people, and give birth to new cities and dozens of industrial enterprises. Large new oases to produce cotton, fruit, and vegetables will appear. A proper evaluation of the coming changes enables us to say with confidence that a nationally important large new region for the production of food products will be created in our region.

But what can the arrival of Siberian water give to the Uzbek SSR, for example? The report at the conference by deputy chief engineer of the Uzgiprozem [possibly Uzbek SSR Land Planning Institute] Institute V. N. Grechikhin and M. I. Kochubey, chief specialist of the same institute, answered this question. According to their outline, we can expect to add more than 10 million hectares of irrigated land, including 3.5 million hectares in established farming zones and 7 million in new irrigation regions. Implementation of this program will mean that the agroindustrial complex of Uzbekistan will practically triple! Think about that word "triple." It means that we will have three times as much of everything we have today in the fields of agriculture and the industry that processes its raw materials, all that we take pride in! Then the sphere of agricultural production will attract 7 million people, including 4.6 million in zones of new irrigation. But the last figure is not a final one, because the sectors of the agroindustrial complex will also develop in the new irrigation regions and they will need just as much labor.

This calculation was made on the basis of the maximum potential of our land resources, that is, the existence of land area that can be put to agricultural use by existing methods. Needless to say, this figure does not include so-called "especially difficult" lands for whose development rational and acceptably inexpensive techniques have not yet been found. Putting them to human use is a matter of the remote future.

We understand, of course, that the first stages in transferring Siberian water will not be able to supply water to all the undeveloped land. Only the best and most acceptable lands will be used.

Another calculation, made by A. V. Bostandzhoglo, scientific associate at the Council for the Study of Productive Forces of the Academy of Sciences Uzbek SSR, puts the figure for new irrigated land in Uzbekistan at 3 million hectares. This is on the condition that 60 cubic kilometers of Siberian water enters the Aral Sea basin.

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This is the figure that economists are using today in their planning projections. This volume of water is to be distributed among the neighboring southern republics. Part of the water will be used en route in Kazakhstan. In the southern regions of that republic it will irrigate heat-loving crops, while in the more northerly regions, Alma-Ata specialists believe that the water can be used to irrigate grain crops. This will make it possible to raise their yield from 15 to 50 quintals per hectare.

The Turkmen SSR will be able to put large areas of virgin land to agricultural use with Siberian water. They have more than 12 million hectares suitable for irrigation, and only 1 million is in use.

The arrival of large supplies of water will be an important stage in the development of the unique mineral deposits of Kazakhstan and Central Asia also. After all, neither industry nor agriculture can develop without water. For example, it takes 15-26 cubic meters of water to smelt a ton of steel and up to 6,000 cubic meters to get a ton of synthetic fiber! Siberian water will make it possible to develop a number of unique mineral deposits whose exploitation could not even be planned without it.

And of course, water is also needed for continued urban development. It has been calculated that it takes 270 tons of water to support one person for one year.

The manmade river will promote stronger economic ties between economic regions of the country. Construction of the supercanal will also mark the beginning of the creation of the unified water management system of the Asian USSR, one of the key links in the unified nationwide water management system now being shaped.

Long ago, in prehistoric times, during the Ice Age, the waters of the ancient Siberian rivers, the Ob' and Yenisey, did not flow north. They flowed south, through the Turgay Gates which connect the West Siberian and Aral-Caspian lowlands. Over time the powerful glaciers that created the pressure head melted and retreated and the Turgay Gates were raised above water level by movement of the earth's crust. The gates were closed and the rivers found a new route to the north, depriving vast southern regions of life-giving moisture. Today Soviet people are preparing to correct nature's "mistake." The waters of the Siberian rivers will again flow south, becoming a unique source which will make it possible to open the door to incalculable riches in the vast arid regions of the country. In the future the Ob' and Irtysh, and possibly other Siberian rivers, will come to the rescue of the Syr-Dar'ya and Amu-Dar'ya.

According to the projections of the All-Union Soyuzvodproyekt Association the route of the future trunk canal will run to the lower regions of the Syr-Dar'ya and Amu-Dar'ya, which is the region that experiences the greatest shortage of moisture today. The Siberian water will connect up with the Amu-Dar'ya in the region between the cities of Nukus and Urgench. At this point a special branch will run off the main canal and electric pumps will deliver northern water along it to the Tyuyamuyunskoye manmade sea now under construction on the Amu-Dar'ya. This reservoir is expected to support irrigation of the lands in the lower reaches of our region's

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principal river. Thus, the entire zone of the lower reaches of the Amu-Dar'ya will be completely nourished by Siberian water and the river's flow liberated thereby will go to irrigate land in the Kashkadar'ya basin (including the fields of the Karshinskaya Steppe), the Bukhara oasis, and along the Karakumy canal which will stretch to Bakharaden.

This prediction allows us to say that at the turn of the century the lower reaches of the Amu-Dar'ya and Syr-Dar'ya will become the country's largest region of hydro land improvement construction. Plans call for irrigating 4 million hectares of new land there with Siberian water; in addition to this, roughly 2 million hectares of existing land will be reorganized.

So-called "ancient irrigation" lands (irrigation arose in these regions roughly 4,000 years ago) will also be used in development of the lower reaches of the region's two largest rivers. In the Middle Ages many irrigation systems were destroyed because of feudal wars and large sectors of fertile land were covered up by sand. It is much easier to prepare them for farming, however, than virgin desert lands. As science has demonstrated, irrigation in oases causes the formation of fertile manmade soils that are unlike any natural soils. For this reason archeologists are making detailed maps of the regions of ancient irrigation and carefully studying the organization of the irrigation network in past centuries. Today all these findings are beginning to be useful to land developers. Ancient irrigated soils, scientists allege, have good texture, are usually less weed infested, and contain more substances useful to plants than lands that were not irrigated. The experience of the ancient irrigators must also be taken into account in choosing the routes of contemporary main canals and planning the detailed irrigation network.

The problems of continued development of the lower reaches of Amu-Dar'ya and Syr-Dar'ya are closely tied to the fate of the Aral Sea, the second largest internal-drainage body of water in the USSR (after the Caspian Sea) and fourth largest in the world. The Aral only exists because of the waters of the Amu-Dar'ya and Syr-Dar'ya. Just two decades ago these rivers and atmospheric precipitation carried almost 60 cubic kilometers of moisture a year to the sea. The same amount evaporated. The Aral had a volume of 1,060 cubic kilometers and a surface area of 66,000 square kilometers. Its water level fluctuated around 53 meters above sea level. Today all these figures are hopelessly out of date. Because large volumes of water are being taken from the rivers for irrigation, evaporation from the sea now exceeds the inflow of moisture significantly. The level of the Aral Sea has dropped seven meters and will continue to drop in coming years. The water is swiftly retreating from the docks, beaches, and fish spawning grounds. This has caused great alarm not only among inhabitants of the Aral region, but in national public opinion. A great deal has been written about the fate of the Aral. I will not repeat these things here, but will only observe that most of the statements have been highly emotional, while the loss has been discussed in generalities.

The Tashkent conference of economists offered me my first chance to hear a concrete discussion with thoroughly substantiated figures. Associates from the Council for the Study of Productive Forces of the Academy of Sciences Uzbek SSR presented their calculations to the audience. They were asked to

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give a socioeconomic evaluation of the negative consequences of the lowering of the level of the Aral Sea. The scientists from this research center had to work out a special methodology for this which enabled them to determine expected economic losses with adequate precision. In addition, they worked out the scientific foundations of steps to mitigate the consequences of the sea's drying up.

Well, what is going to happen in the Aral region because of this process? There is no question that the climate will become more continental. As the volume of water decreases the heat reserve stored by its water will also diminish. It is expected, therefore, that the average air temperature will drop by 1-3 degrees, spring frosts will be later, and fall frosts earlier. Therefore, the growing season for the development of agricultural crops will be shortened. It is contemplated that the sum of effective temperatures will be reduced. This means that cotton will not be able to receive sufficient heat to mature during the summer.

The processes of desertification will develop. The first signs of them can already be observed around Kyzyl-Orda and Tashuz. Ground findings have been confirmed by observations from space which detect clouds of saline dust driven by storm winds from the Aral Sea in the direction of the Tien-Shan and Kopetdag.

There is more. The greatest disaster that awaits the Aral region in the future is degradation of the land in the delta of the Amu-Dar'ya and Syr-Dar'ya, an area of 1 million hectares. The process of desertification has not touched the agricultural zone yet, and associates of the Council believe that it can still be prevented from entering this zone. These lands will be saved, of course, by the timely arrival of Siberian water. But it would be a mistake to place all hopes on the transfer of this water and not take local steps to stop the process of desertification today. After all, surveying and work on the project are still underway, and at the present time there are no concrete deadlines for construction of the canal. The beginning of its construction could be delayed for various reasons, and then time will be lost and processes in the delta soils will become irreversible. Large capital investment, running into billions of rubles, will have to be spent to restore these lands. This can be avoided if implementation of a program is begun immediately, as recommended by the Council for the Study of Productive Forces of the Academy of Sciences Uzbek SSR. Then changes in the natural world will not catch us by surprise.

One of the immediate steps is to reorganize the whole structure of agriculture in the Aral region. It appears that the northern boundary of cotton-growing will be shifted to the south. This is understood in Karakalpakistan, where intense work has begun in recent years to develop virgin lands for cotton fields in the southern part of the autonomous republic. In its northern regions a zone to raise seed alfalfa should be established. A quintal of seeds of this feed crop is worth thousands of rubles. Therefore, a yield of just three quintals of alfalfa seed per hectare will earn just as much money as 60 quintals of cotton. The favorable natural conditions of the Aral region make it possible to get up to eight quintals of alfalfa seeds. These figures are their own propaganda.

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Animal husbandry is another sector that should be developed intensively here in the coming years. Any comment on the significance of developing this sector would be superfluous.

I do not think there is any need to go into all the details of the upcoming reorganization of human economic activities in the Aral region. We need only point out that a high degree of coordination among the neighboring republics of Kazakhstan, Uzbekistan, and Turkmenistan is needed for this. It will help avoid unnecessary losses.

But there will, of course, be losses. It is already clear today that the Aral is ceasing to be a major supplier of valuable commercial fish species. These losses can be compensated for in a quantitative sense (but not qualitative!) by the development of pond aquaculture and planting young fish in reservoirs. The Aral fur industry has also gone into decline; the drying up of the delta has had its impact on purchases of muskrat fur. Mineralization of the water is growing in these regions, which leads to a drop in the yield of agricultural crops. These losses can be evaluated in rubles. However, with the drying up of the Aral we also encounter a loss that cannot be quantified by economists. You understand, of course, that I am referring to esthetic losses, for the Aral Sea is one of the most marvelous regions of our country.

When Siberian water reaches Central Asia in the future the level of this declining sea will stabilize. But it is now obvious that it will not be possible to return it to its original condition.

That is how we must pay for water. Incidentally, how much does it cost?

Each month city-dwellers pay a very modest amount to the cashier's office for water service. Yet the kolkozoes and sovkhozes, who pour whole rivers onto their fields, do not pay anything at all. They pay for electricity, but not for water, even though the state uses that same electricity to pump the water. Suffice it to say that roughly one-third of the planted area in Uzbekistan is irrigated with water delivered by pumps! We have built large machine irrigation canals such as the Amu-Bukhara and Karsh' canals. The latter is designed to raise water 130 meters to the steppe. The electric pumps installed along this manmade river use as much electricity in a year as was produced by all the power plants in Tsarist Russia. That is how the scale of things in our region has changed.

But now we see that the water, whose delivery to the fields costs so much human labor, does not cost the waterer anything. No matter how much water is used, this is not reflected at all in the economic indicators of the brigade or the kolhoz. In practice, therefore, an unspoken rule is often followed: it is better to use too much water than too little.

This statement cannot help causing alarm. It is no accident that many specialists at the all-Union economic conference in Tashkent raised the question of paying for water.

Speakers at the conference recalled that a payment for water was once instituted in the Uzbek SSR, during the 1950's but it was later abolished. At

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that time the decision was correct, for science then was unable to recommend adequately substantiated norms of water use. It turned out in practice that the additional expenditures were carried by farms who were developing difficult land that required large volumes of water for flushing. As a result, instead of being rewarded for bringing virgin land into production the farms paid a penalty for overuse of water. In practical effect they were punished for developing new lands. Price policy is a subtle economic tool. Sometimes it comes out in a completely unexpected way. Nonetheless, life demands that a payment for water be instituted again in the interests of water conservation. Other regions of the country, for example Kirghizia, are already undertaking such efforts. But as participants at the conference observed, this experience has not been entirely successful. What has happened in practice has been a "shifting of money from one pocket to the other." Therefore, the conference proposed that a more refined system of charges for water be worked out. It recommended that such a system be introduced gradually, after testing in particular regions. It is essential to solve the problems of keeping strict accounts of water. At the present time the kolkhozes and sovkhoses do not have measuring devices and the volume of water delivered to divisions and brigades is in fact determined "by eye." Only the test fields of the scientific research institutes have water measuring instruments today.

It is particularly important to charge for water today, when we are preparing to receive it from the Siberian rivers. Every cubic meter of this distant water will cost 80 kopecks. But economists figure that this will still be barely half the cost of water from local reserves which it is planned to take before the end of the century by rebuilding the existing irrigation network. After all, it is very expensive to "dress" the canals in "concrete clothing." Machine builders know very well that it is very expensive to improve the machining of parts. Costs rise sharply with a higher grade of metalworking. In the same way, "fine tuning" will be quite expensive in irrigation. But the efficiency of the irrigation system cannot be raised without such expenditures. And, of course, it is the job of the economists to determine the wise limits of such "fine tuning."

The conference showed that economic science faces many challenges. One of the most important is to find economic mechanisms that will permit us to organize efficient use of water, a precious natural resource. The 25th CPSU Congress called this a major economic problem. A. N. Kosygin, chairman of the USSR Council of Ministers, said in his talk at the congress, "We must focus attention on steps toward economical use of water. Agriculture has major reserves for water conservation, especially in the large amount of water used for the needs of irrigation. These reserves must be utilized."

In concluding my remarks on the scientific conference, I would like to give the main conclusion of the meeting of scientists: it is absolutely essential to build a manmade river from Siberia to Central Asia. This project should be carried out quickly as possible to prevent the occurrence of a gap in time between depletion of local moisture resources and the arrival of Siberian water. If we delay we are threatened by a decline in the yield of our fields and major economic losses.

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We are still hoping that this vast construction project will begin in the near future. It will be one more manifestation of the friendship among Soviet peoples, who have joined their efforts to carry out the most grandiose plans.

There is a saying in the East: "When you go to work with a friend, the snow is melted away." Speaking of snow, it is solid water, after all, and, as everyone today knows, will be "fuel" for the thermonuclear power plants that are expected to supply people with adequate, inexpensive electricity in the future. For now, the fraternal Soviet peoples have already begun reversing the flow of rivers and moving mountains.

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VOLUME TWO OF TURKMEN SOVIET ENCYCLOPEDIA REVIEWED

Ashkhabad TURKMENISTAN KOMMUNISTI in Turkmen No 10, 1980 pp 87-92

[Article by Kh. Gurbanov, G. Berdiev, K. Rejebov, Sh. Khalmukhammedov: "The second Volume of the TSE"]

[Editorial Report] "The second volume of the TSE contains numerous articles on different fields of science and technology"...Readers will be able to get a clear idea about the history of the multi-national Soviet people, their present happy situation and bright future, the growth of the socialist system and the vanguard role of the USSR." There are also materials on "fraternal socialist countries and the developing world." Articles pertaining to "prominent personalities, revolutionaries, party and state workers, heroes of the war and of labor... increase the value of the volume." Data is given about "more than 250" prominent personalities of the past and present "and it is a fact that 109...are connected with our republic." Also, "a sufficient number of articles...pertaining to various questions of linguistics, literature and the arts" are presented. Many "archaic" sociological, socio-political and economic topics are also treated.

Some entries, such as "Gyzbibi mavzoleyi" [mausoleum of Gyzbibi] "Galam" [pen; writing implement] and "Gar" [snow] have no importance. Others, such as "Valyuta" [currency] could have been handled in greater detail. In other articles contradictory data is presented; i.e., on the length of the Garagum Canal at different phases of its construction. Similar statistical discrepancies creep into many of the economic articles.

Scientific articles also present certain inaccuracies; for example, the term "gaty suv" [heavy water] is used in place of the more correct options "talkh suv" or "suvung talkhlygy."

In the treatment of literature and art "despite discussions on the lives and works of writers and poets, why are the names of the works not given?" Also, folklore is dealt with superficially. In some of the materials translated from other languages the precise expressions or words are not always used.

"We hope that the defects...noted in this review...will aid in raising the level of ideas, content and professionalism in coming volumes." The present volume encompasses the letters "V" and "G."

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