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SOCIAL SCIENCES

- *Manifesto of the Communist Party and the Contemporary World*
- *Society and the Environment*
- *Cuba at a New Stage of Socialist Construction*
- *Bourgeois Revolutions in Europe*
- *The Concept of Level in Language System*
- *Developing Economies in Terms of Growth and Reproduction*

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To the Reader

The current year has witnessed momentous positive changes in the world situation. The affirmation of the principles of peaceful coexistence in the relations between states with differing social systems makes for new favourable conditions in the fight for social progress, democracy and socialism. The Peace Programme advanced by the Soviet Union and actively implemented by it therefore accords with the immediate and long-term interests of progressives all over the world. Today this Programme consistently puts into effect the principles of proletarian internationalism which were formulated 125 years ago by Karl Marx and Frederick Engels in the *Manifesto of the Communist Party*.

SCIENTIFIC COMMUNISM

Academician *B. Ponomaryov* writes about the enduring significance of the *Manifesto of the Communist Party* which for the first time in history gave an integral formulation of the theory of scientific communism, of the revolutionary programme of the proletariat and the principles of its strategy and tactics.

ECOLOGY

Problems of the relationship between man, society and nature are discussed in five articles on the subject and also in the Discussion and Comments section which carries a report of a Round Table discussion of a group of leading Soviet scholars, organised by the journal *Problemy filosofii* (Problems of Philosophy). The contributors are representatives of the social, natural and technical sciences, which is indicative of the comprehensive approach of Soviet scholars to the problem of the protection and improvement of the environment.

The ecology problem is not an entirely new one for Marxists. It dates back, as a matter of fact, to Engels' *Condition of the Working Class in England*, determining the Marxists' scientific approach to this problem in the general context of social development.

POLITICAL SCIENCES

The further socialist transformation in Cuba, the structure of the political and socio-economic development of the new society being built in the first state of workers and peasants in the Western

Hemisphere are examined in the article by B. Gorbachev and O. Darusenkov, Soviet experts on Latin American affairs.

HISTORY

Proceeding from an analysis of European history of the 16th to 18th centuries A. Chistozvonov, D. Sc. (Hist.) draws the conclusion that the division of the bourgeois revolutions in Europe into "earlier" and "later" periods, that is, according to the time principle, is insufficiently grounded scientifically and that it would be more accurate to classify these revolutions according to the stage principle, that is, as revolutions of the manufactory, factory and imperialist stages of capitalism.

LINGUISTICS

In his article V. Solntsev, D. Sc. (Philol.), a leading Soviet authority in Oriental languages, generalising extensive theoretical material and applying theoretical conclusions to concrete data related to different languages of the world, introduces into science a concept of the language system level.

ECONOMY OF THE DEVELOPING COUNTRIES

L. Reusner, a young economist, considers some methods of analysis of economic progress, which have become traditional. The author examines the content of such terms of economic dynamics as reproduction and economic growth, capital and income, savings and accumulation.

* * *

The Reviews and Bibliography sections are, as usual, widely represented in the current issue. The New Books on the Social Sciences section which carries brief annotations of the most important works of Soviet scholars, will now be a regular feature.

The Editors

Academician Boris PONOMARYOV,
Alternate Member of the Political Bureau,
Secretary of the CPSU Central Committee

Manifesto of the Communist Party and the Contemporary World

Report at the International Conference "The Historic Mission of the Working Class and the World Revolutionary Process Today" held in Berlin, March 15-16, 1973, in connection with the 125th anniversary of the *Manifesto of the Communist Party*.

The *Manifesto of the Communist Party* occupies a special place in the history of Marxist thought, in the struggle for the ideals of communism.

This document for the first time in history gives an integral exposition of the *theory* of scientific communism, formulates the objective laws of social development determining the need and inevitability of the transition from capitalism to a new, higher socio-economic formation—the communist formation.

The *Manifesto* is the first comprehensive *programme* of the revolutionary party of the working class. In it the immediate tasks of the working-class movement of that period are organically tied in with a clear definition of its ultimate aims. The *Manifesto* armed the working class with a historical perspective, expressed the political determination of its vanguard to fight for a fundamental reorganisation of the whole of social life.

The *Manifesto* sets forth the revolutionary principles of the *strategy and tactics* of the Communists. It shows that only along the road of consistent class struggle can the proletariat liberate itself and at the same time also the whole of society from exploitation and oppression, that its mission is to support and unite all democratic and liberatory forces that oppose the exploiter system. The *Manifesto* proclaimed the principle of proletarian internationalism. It gave the working class the great slogan "Working Men of All Countries, Unite!"

The *Manifesto* gave a brilliant example of principled *scientific criticism* of pseudo-socialist theories and doctrines that pushed the working-class movement onto the path of reformism and opportunism. It became an instrument of liberation of the proletariat from the influence of bourgeois and petty-bourgeois ideology. It revealed the utter falsity of the postulates of anti-communism and simultaneously with this vast importance of waging an uncompromising struggle against it, by showing that such a struggle is essential for realisation by the proletariat of its world-historic mission.

According to Lenin, the *Manifesto* "With the clarity and brilliance of genius ... outlines a new world-conception, consistent materialism, which also embraces the realm of social life; dialectics, as the most comprehensive and profound doctrine of development; the theory of the class struggle and of the world-historic revolutionary role of the proletariat—the creator of a new, communist society".¹ That is precisely why the *Manifesto* also today remains the handbook of every real revolutionary, of every Communist.

The great service rendered by the authors of the *Manifesto* is that they discovered the real force whose mission is to realise the communist social ideal and which is capable of realising this ideal. This force is the working class. The great discovery by Marx and Engels turned socialism from a utopia into a science. The theory of scientific communism showed the oppressed classes what must be done for liberation from oppression and exploitation.

The doctrine of the world-historic mission of the working class, including the definition of the ultimate aim of its struggle, expresses the very essence of scientific communism. This doctrine underlies the elaboration of the general political line of proletarian parties at all stages of the working-class movement: in the period of preparation for revolution, in the course of the revolution itself, in the process of the establishment and development of a new, socialist society. It is the main line in the daily activities of the Communist and Workers' parties.

The *Manifesto of the Communist Party* is the vivid embodiment of the creative character of Marxism, its live, direct link with the revolutionary practice of the working-class movement.

Naturally, Marx and Engels could not foretell in detail the trend of revolutionary development a century in advance. For that matter they did not set themselves such a task. Even more. They opposed with devastating sarcasm hare-brained schemes of any kind, abstract slogans, divorced from historical reality.

Basing himself on the principles and methods elaborated by Marx and Engels, V. I. Lenin creatively developed their revolutionary theory in application to the epoch of imperialism and proletarian revolutions, the epoch of the transition from capitalism to socialism on a world scale. The victorious Leninist strategy of socialist revolution ensured the gains of the Great October Revolution and the subsequent powerful upswing of the world revolutionary movement.

In the past 125 years the world has changed beyond recognition. But the changes themselves testify basically to the continuity of the present-day working-class movement with respect to its ideological and political sources, embodied in the first programme document of the Communists.

I.

Today the ideas of the *Manifesto* are not only a brilliant forecast of development. They are the perceptible practice, the tangible reality

of the new social system which has put an end to the exploitation of man by man and which is ever more confidently advancing toward achievement of the ultimate aims formulated by the founders of scientific communism. That is why the Communists, the fighters for the ideals proclaimed in the *Manifesto*, can boldly and confidently tell the working people of the world that this document gives the true answer to the questions affecting the most important, the most vital interests of all mankind. The greatness of the *Manifesto* lies precisely in the fact that the creative practice at first of millions and then of hundreds of millions bears out the correctness of its ideas.

Real socialism represents the main, the most complete embodiment of the ideas of the *Manifesto*. Its formation and development, that is, the formation and development of the world socialist system, is the most weighty practical proof of the correctness of the Marxist-Leninist doctrine. Immense historical experience has been accumulated in the victorious building of socialism. Taken in its most essential features it has comprehensively enriched the theory of scientific communism and is a component part of it. The fact itself of the existence of real socialism and its experience create favourable conditions for struggle for all contingents of the international working-class and liberation movements.

Take the example of the Soviet Union. History entrusted the Soviet working class, its Leninist vanguard with the honourable mission of being the pioneers on the difficult and complicated road to communism. As stated in the *Manifesto*, "the first step in the revolution by the working class, is to raise the proletariat to the position of ruling class..."². And the first such victorious revolution was carried out in Russia in October 1917. Since then a gigantic path has been traversed.

What are the most important advances made by the Soviet Union and the CPSU in realising the basic principles of the *Manifesto*?

First. The main task of the socialist reorganisation of society after the proletariat had won political supremacy was, in the words of the *Manifesto*, "to wrest, by degrees, all capital from the bourgeoisie, to centralise all instruments of production in the hands of the State..."³. One of the first historic acts of the Soviet power was the socialisation of the decisive means of production and securing the dominant position of the state sector of the economy. This became the basis of a fundamental social change: the break up of the old, exploiter social relations and the creation of new, socialist social relations.

On the basis of public property the CPSU and the Soviet state are directing, in a planned manner, the process of the drawing closer together of all classes and social groups, are pursuing a policy directed at bringing about the ever greater social homogeneity of Soviet society, the further elimination of the basic distinctions between physical and mental labour, between working and living conditions in town and country.

Second. The political power of the proletariat and the socialisation of the means of production clear the way to accomplishing the historic

task formulated in the *Manifesto*, namely, "to increase the total of productive forces as rapidly as possible".⁴

The creative power of the new system, multiplied by the political art of the CPSU, by the mass heroism of Soviet people, has brought the Soviet Union to the heights of economic and scientific and technological progress. The Land of Soviets, the first to embark on the socialist path, today possesses a mature economy equipped with an advanced technology. The Soviet Union accounts for about one-fifth of the world's industrial potential and for about one-fourth of the world's scientific forces. The material and technical basis has thus been created also for curbing the forces of imperialist aggression; the USSR serves as a reliable bulwark for the peoples of the socialist community in the defence of their revolutionary gains, for the peoples, who have cast off the colonial yoke, in the consolidation of their independence, in the struggle of all progressive forces for peace and the prevention of a new world war.

The problem of developing the productive forces as rapidly as possible is being tackled by the CPSU today in close conjunction with perfecting the entire economic and socio-political system of developed socialism. The essence of the Party's approach to this problem is expressed in the course set by its 24th Congress organically to fuse the advantages of the socialist economic system with the achievements of the scientific and technological revolution. The question is to enhance the effectiveness of the economy, to intensify production by introducing the latest achievements of science and technology, to consistently apply scientific methods of management.

The accomplishment of these tasks means not only ensuring the success of the Ninth Five-Year Plan and laying the foundation of economic progress over a long period. It also means ensuring the advance of the forces of socialism on one of the main fronts of the world confrontation of the two systems—the front of the scientific and technological revolution.

Third. "In bourgeois society," wrote Marx and Engels in the *Manifesto*, "living labour is but a means to increase accumulated labour. In Communist society, accumulated labour is but a means to widen, to enrich, to promote the existence of the labourer."⁵ Communists consider the *fullest possible satisfaction and development of the material and spiritual needs of the working people* as the supreme aim of social production on the way to communism. The Party's first Programme, adopted 70 years ago, and its second Programme, elaborated by Lenin and adopted in 1919, advanced the task of "securing the well-being and all-round development of all members of society". The CPSU Programme adopted by the 22nd Congress of the Party sets the aim of raising the material and cultural standards of the working people and securing the all-round and harmonious development of the individual.⁶

The 24th Congress of the CPSU, it will be recalled, defined as the main task of the present Five-Year Plan to secure a considerable rise in the well-being of the working people. The Congress decisions reflect the close link between the tasks of

economic development proper, accelerated scientific and technological progress and improvement of the life of the people. Only by making full use of the achievements of the scientific and technological revolution can a further substantial rise in the well-being of the entire people be ensured. On the other hand, it is impossible to achieve the all-round development of the main, the human factor of the scientific and technological revolution without a steady rise in the living standard and cultural and educational level.

The CPSU lays stress not only on the *standard* but also on the *quality* of living of Soviet people. Marxism-Leninism decidedly rejects both the false wisdom of the thesis "poverty is good" and the Philistine "ideal" of a life of ease, its political passivity. The CPSU consistently combines the drive to raise material consumption with concern to multiply spiritual and cultural values, with education of Soviet people in a spirit of Marxist-Leninist ideological integrity, civic activity and a lofty morality. This graphically reveals the humanistic nature of the socialist system to all humanity.

Fourth. The *Manifesto* proclaimed: "In proportion as the antagonism between classes within the nation vanishes, the hostility of one nation to another will come to an end."⁷

The experience of history has shown that this is a complicated problem. It was doubly so in a country inhabited by more than 100 nations and nationalities who were at very different stages of socio-economic and cultural development.

In the fifty years of the development of a multinational socialist state a real revolution was carried out in national relations. A fundamentally new form of state union of peoples established itself—the Union of Soviet Socialist Republics which ensured the stable unity of nations and nationalities on a state-wide scale and created the best conditions for their development. Invaluable theoretical and practical experience in solving the national question has been accumulated, experience which is of international significance. Political forms of the unification of nations and nationalities, their relations in conditions of equality and all-round fraternal cooperation have been found and implemented in practice. The task of bringing the economic and cultural development of the national republics up to the same level, a task unprecedented in scale and complexity, has been accomplished in the main. A new historical community of people—the Soviet people—has taken shape.

Fifth. The history of the development of the Soviet socialist state is before all else the history of the enhancement of the role of the working class as the leading force of society. This leading role is carried out essentially through the Communist Party, for it is the Party which unites scientific knowledge of the laws of social development with the creative initiative of the masses, with their practical activity in all spheres of communist construction. The Party's political line embodies the alliance of the working class with the peasantry, the coincidence of the interests of the working class with the interests of social development, with the interests of all working people. The Party is the higher form of organisation of the working class, expres-

sing the will of the working people, irrespective of professional or national affiliation, and combining harmoniously the specific interests of individual social strata and groups with the long-range, strategic objectives of socialist social development.

The authors of the *Manifesto* considered the establishment of the political rule of the proletariat, later called the dictatorship of the proletariat, also as the winning of democracy.⁸ By raising the working class to leadership of society, by strengthening the alliance of workers and peasants, by uniting the intelligentsia with them the dictatorship of the proletariat thereby draws all working people into conscious and active political life, into the administration of the state. The live experience of socialism is the best refutation of the attempts by bourgeois and revisionist propaganda to contrast democracy to the dictatorship of the proletariat, to the leading role of the Communist Party. It is precisely the party, expressing in concentrated form the supreme interests of the people, that ensures the elimination of bureaucratic, technocratic, localistic and other tendencies alien to the very concept of democracy.

Having secured the political conditions for building a developed socialist society the state of the dictatorship of the proletariat in the Soviet Union gradually grew into a socialist state of the entire people in which the working class remains the leading force. The main directions in which the Soviet state will develop further have been defined by the 24th Congress of the CPSU.

The new Constitution of the USSR is designed to demonstrate the further development of the legislative foundation of socialist democracy at the stage of developed socialism. As L. I. Brezhnev, General Secretary of the CC CPSU, noted in his report "The Fiftieth Anniversary of the Union of Soviet Socialist Republics", the Constitution must reflect the most important changes in the life of the Soviet Union since the adoption of the 1936 Constitution and the tasks facing Soviet society in the new conditions.

The building of a developed socialist society is the historical result of the Soviet people's 50-year effort. The advantages of socialism manifest themselves more and more fully at every new stage of social progress. At the same time the new tasks are growing in scale and grandeur, and in tackling them much still needs to be improved, developed and perfected. "No form," Lenin wrote, "will be final until complete communism has been achieved. We never claimed to know the exact road. But we are inevitably moving towards communism."⁹ The movement towards communism is invincible.

The Soviet Union has already crossed the half-century mark. Other socialist countries have been in existence for many years now. The communist movement now possesses rich experience both as regards the realisation of the objective laws of socialist development in individual countries—and this in the most diverse forms—and as regards the building and perfecting of the new society—on principles of fraternal mutual assistance and coordination of efforts—in a whole group of states, within the framework of the socialist community. Invaluable experience has been accumulated in establishing a new

type of international relations. These relations, based on principles of proletarian internationalism, fraternal cooperation of sovereign socialist states, enjoying equal rights, are the prototype of future relations between the nations of the world.

In marking the 125th anniversary of the *Manifesto* it is particularly in place to note that socialism has victoriously come to German soil, to the homeland of the great authors of this historic document. Today the working people of the GDR, in close alliance with the USSR and other fraternal countries, are, under the leadership of the Socialist Unity Party of Germany, tackling the task of building a developed socialist society. In the quarter of a century of the GDR's existence our German friends have made a big contribution to the practice of socialist construction. They skilfully apply the general laws of building a new society in the concrete conditions of their country. The GDR is a reliable detachment of the socialist community, it enjoys increasing prestige throughout the world. The Socialist Unity Party of Germany—the vanguard of the working class, of all the working people of the GDR—plays an active role in the international communist movement, greatly furthers the consolidation of its ranks. The successes of our German friends, like those of the other peoples of the socialist community, are visual proof of the correctness and vitality of the *Manifesto's* ideas.

II.

In the *Manifesto of the Communist Party* Marx and Engels predicted a great future for the proletariat. This prediction finds confirmation in real socialism—the main gain of the international working class—and in the steadily growing force of the proletariat in the non-socialist part of the world.

In present-day conditions the objective possibilities of the working class in the capitalist countries have grown immensely. This is most closely connected, of course, with the existence of the socialist system, with its gains, its sweeping impact on the rest of the world. It is also connected with the further deepening of the general crisis of capitalism.

Bourgeois society, wrote the authors of the *Manifesto*, is like the sorcerer "who is no longer able to control the powers of the nether world whom he has called up by his spells".¹⁰ How fitting this comparison is today when the endemic vices and ulcers of capitalism have acquired a particularly intolerable and ugly character. The policy of militarism and the arms race lead to the unproductive spending of colossal resources. Meanwhile millions of people are left jobless, experience want and uncertainty of the morrow. Unrestrained inflation and a spiralling cost of living have become constant companions of capitalism. The capitalist world is bogged down in a monetary-financial crisis. Speculation, corruption, drug traffic and crime are rife in bourgeois society. Political instability, a profound socio-political crisis is the prevailing situation today in a number of capitalist countries.

Capitalism has become the greatest obstacle in the way of social progress. History has already passed its sentence on this system. The proletariat, the most revolutionary class of society, will be the one to execute the sentence.

In the capitalist world the proletariat is steadily swelling its ranks. This is taking place through the expansion of its industrial core as well as by increasing other detachments: agricultural workers, workers in trade, and certain other categories of workers of physical and mental labour.

The working class of the socialist countries is the advanced detachment of the "world's great army of labour", as sung in the *Internationale*, the proletarian anthem. In all parts of the world workers constitute the bulk of the more than 700 million persons who, according to the data and terminology of the International Labour Organisation are "wage workers". The international working class of our time is, therefore, a tremendous social force which has no equal in history. It goes without saying that the social strength of the workers stems, as Marx pointed out, from their numbers.¹¹

The growing possibilities of the working class are evident from *the qualitative changes in its composition, the enhancement of its role in contemporary society as a result of the scientific and technological revolution*. The introduction of up-to-date technology in various spheres of the national economy and the rapid growth of technically advanced industries strengthen the vanguard positions of the industrial workers—the socially most active section of the working class in relation to the whole class.

For many categories of industrial workers knowledge, intellectual effort, are acquiring increasing importance in their work. On the other hand, a considerable part of engineers and technicians are subjected to increasing exploitation and are becoming proletarianised, that is, are, according to their position and interests, drawing closer to the industrial workers. The vast industrial experience of mankind, the sum total of the practical skills and technical knowledge evolved in the course of generations are accumulated in the contemporary working class. The scientific and technological revolution enhances still more the role of the working class as the main productive and socio-political force of our time.

Capitalising on the changes brought about by the scientific and technological revolution our ideological opponents, ranging from avowed bourgeois ideologists to renegades of the type of Garaudy, Djilas and others, try to minimise the role of the working class. Some identify it with workers of physical labour exclusively and, referring to the consequences of scientific and technological progress, talk about a decrease in the number and influence of the proletariat, foretell its speedy disappearance. Others, on the other hand, dissolve the working class in an amorphous "historical bloc" where the leading position is assigned to the intelligentsia. Still others artificially construct a "new middle class" which they present as a growing, promising social force and oppose it to the working class.

The class meaning of all these theories is, in effect, a negation of the revolutionary mission of the working class. The various bourgeois and revisionist falsifications are dictated by fear of the growth of its forces and influence. Spiking arguments of this kind Leonid Brezhnev in his speech at the 15th Congress of Soviet Trade Unions said: "Despite the fashionable anti-Marxist theories that the scientific and technological revolution is supposedly leading to the narrowing of the boundaries of the working class and even to its liquidation, the facts speak of the very reverse: scientific and technological progress is leading to a growth of the working class everywhere, including as a result of new professions engendered by present-day production."¹²

No less important is also the factor of *the growth of the degree of organisation of the working class*. Organisation is the proletariat's main weapon in the struggle for its fundamental rights and interests, in the struggle for political power.

Millions of working people of the capitalist countries are organised in trade unions, in the Communist, Socialist and Social-Democratic parties. They would be an invincible political force if they acted in concord. As we know profound ideological and political differences divide the Communists, on the one hand, and the Social-Democrats and Right Socialists, on the other. This notwithstanding, Communists favour united action with the Social-Democrats on a platform of struggle in defence of peace, and against the war danger, and for the vital demands of the working class, of all working people. The Right-wing leaders of Social-Democracy who orientate themselves on class collaboration with the bourgeoisie hamper unity of action of all the working-class detachments. That is why a decisive struggle against social-reformism, against any position that subordinates the working-class movement to the interests of monopoly capital, is essential to achieving united action of Communists and Social-Democrats.

Despite the resistance of the Right-wing leaders favourable conditions are shaping in many capitalist countries for cooperation between the Left forces of the working-class and democratic movements; positive experience of joint actions is accumulating. The process of differentiation in social-democratic ranks is intensifying.

Let us now take the biggest mass organisation of the working people—the trade unions. At the close of the 19th century the number of organised working people totalled approximately four million. Since then giant strides have been made. Today the trade unions of the socialist countries unite about 150 million persons, those of the developed capitalist countries—65 million and the unions of the Third World countries about 40 million persons.

Thus the level of the professional degree of organisation of the working class of the capitalist countries—the achievements in this field notwithstanding—still greatly lags behind its numerical growth. This speaks of the many possibilities still untapped.

The trade unions in the capitalist world could play a much bigger role if they coordinated their actions. In recent years the movement for united action of unions of different orientations has gained momentum. The international trade union movement is also apparently

xperiencing a new phase characterised by the expansion of contacts. Joint actions by unions of different orientations would allow for making much fuller use of the working class possibilities in the anti-monopoly and anti-imperialist struggle.

New possibilities are opened up before the working class by *the drawing closer together of the interests of all strata of the working people* as the antagonisms between the ruling clique and the masses grow sharper as a result of the intensification of the state-monopolistic character of capitalism.

The state-monopolistic policy in the countryside leads to the ruin of the working peasantry. Therefore, although it is decreasing in number, its resistance to the policy of the monopolies is increasing. Strengthening the alliance of the working class with the working peasantry, with the small and middle farmers continues to be one of the main conditions of success in the struggle against monopoly rule.

The alliance of mental and manual workers in the capitalist countries is acquiring increasing importance.

The protest of numerous urban and middle strata is mounting. This still further narrows the social base of monopoly power, aggravates the internal contradictions of bourgeois society.

Considerable inflammable material, dissatisfaction and an urge for change have accumulated within the depths of capitalism. Therefore the working class, given a correct policy by its proletarian vanguard, can reckon in its struggle on the support of the most diverse social forces, of the overwhelming majority of the people.

A major indicator of the growing possibilities of the working class, of its growing militancy, is the *powerful upswing of mass actions by the working people* beginning with the second half of the 1960s. If we take into account all kinds of mass actions the total number of their participants reaches 60-70 million annually (in the developed capitalist countries the number has more than doubled compared with 1965).

A characteristic feature of these actions, including those of the biggest strikes, is their increasingly pronounced class, political anti-capitalist tenor. This means that the working masses in the capitalist countries are not inclined to tolerate the intensification of exploitation, of labour, are more and more challenging the high cost of living, growing inflation, the increasing encroachments on their economic and social gains, the attempts to curtail democratic rights and freedoms. The workers are not only defending the positions won; they are stepping up offensive actions, are advancing new demands that affect the very foundations of capitalist property and power.

Another distinctive feature of the mass actions of recent years is the broad participation in them of different social strata: intellectuals, office employees, students, small employers, peasants, pensioners.

Reality is dealing telling blows at the bourgeois-reformist and revisionist views regarding the "integration" of the working class in the capitalist system, its "embourgeoisement", and much else in this vein. Of course present-day mass production, a colossal propaganda and publicity apparatus give the bourgeoisie unprecedented means for conditioning the needs, habits and tastes of people, for foisting

bourgeois "values" on them. In any event the accumulation of social contradictions is tearing the fetters of spiritual, ideological subordination which the ruling circles try to put on the working class, and the consistent selfless ideological struggle of the Communists is helping the working class to better realise its position and to achieve success.

The working class actively participates in all the major social movements taking place in the capitalist world today. It is the working class that imparts to these movements the steadiness, the constancy of their development, determines their main direction and effectiveness.

The new possibilities of the working class follow from the broad, all-embracing *process of the internationalisation of contemporary public life*. In bourgeois society this process acquires primarily the form of the internationalisation of capital. But thereby all the greater becomes the objective interdependence of the interests of workers of different countries, all the stronger becomes the international character of the class struggle. The growing role of the World Federation of Trade Unions, of various international trade unions testifies to this as also do the first international strikes against supernational monopolies and the mass campaigns in support of Vietnam, not to mention a host of other facts.

The growing internationalisation of production, science and culture expand and multiply the objective prerequisites for demonstrating proletarian internationalism in action. But if the possibilities latent in it are to be fully revealed proletarian internationalism must be given concrete political form. It is essential that the workers of every country should feel and act as a component part of the international army of labour. This is what the enemies of the working class are particularly afraid of; hence the wide use of anti-communism and various "arguments" from the arsenal of nationalism to offset this prospect.

Peking's present policy, too, its splitting, nationalist and chauvinist course are directed against the internationalism of the workers of different countries. The Chinese leaders are bent on setting the various detachments of the working-class movement against the Soviet Union, against the countries of the socialist community. They pursue a policy of alienating peoples and countries, of kindling nationalism. This is a crime against the working class, against peace and socialism. It is a direct challenge to the fundamental ideas of the *Manifesto*, to the ideas of fraternity and friendship of working people of all nations and races.

Vigorous repudiation of anti-communism, anti-Sovietism and nationalism is an essential condition for realising the growing possibilities created today by proletarian internationalism, by the strengthening ties of the capitalist countries' working-class movement with real socialism.

When speaking of the increased possibilities of the working class Marxists-Leninists also take into account its *vast historical experience of class battles*. This experience enables it successfully to counteract the bourgeoisie's subtle methods of class struggle.

To preserve their rule the bourgeoisie resort to the most diverse

means of state-monopolistic policy, social manoeuvring and ideological influence. To this end also the methods of the direct suppression of working-class actions are modernised: the police forces specially trained to fight the masses are equipped with the latest technical means including rubber bullets, tear gas, water cannons, etc.

But the working class of today, in the conditions of the scientific and technological revolution, is also acquiring new means for raising the effectiveness of its actions. Still in 1919 Lenin wrote that the working class "economically dominates the centre and nerve of the entire economic system of capitalism".¹³ This is doubly true today, for the scientific and technological revolution intensifies the interdependence of the main links of capitalism's economic system, makes it particularly sensitive to any violations. Today, more so than ever before, the working class and its mass organisations possess the possibilities for paralysing the mechanism of capitalist society, for bringing it to a standstill and for weakening the effectiveness of the means of suppression in the hands of the bourgeoisie.

The experience of the mass actions by the working people of the capitalist countries needs to be most thoroughly studied. In this connection I should like to quote the following statement by Lenin: "Under no circumstances does Marxism confine itself to the forms of struggle possible and in existence at the given moment only, recognising as it does that new forms of struggle, unknown to the participants of the given period, inevitably arise as the given social situation changes. In this respect Marxism *learns*, if we may so express it, from mass practice."¹⁴

The possibilities of the contemporary working class are therefore exceptionally great. The point is that these possibilities should be used to the full in the interests of the working class, of all working people, in the interests of peace, democracy and socialism. The efforts of the Marxist-Leninist parties are directed toward this end. Concerning the positive experience accumulated by them the following conditions may be listed as those ensuring success:

— the considerably higher ideological level of the working-class movement, the fact that most of the working class has freed itself from the influence of bourgeois ideology, anti-communism, social-reformism, nationalism, Right and "Left" revisionism, the education of the entire mass of wage workers in a class, internationalist spirit;

— joint actions by the main trends of the working-class movement which represent its parties and organisations both on a national and on an international scale;

— the general development and consolidation of broad class alliances of the proletariat under its leadership, the improvement of the strategy and tactics of the working-class movement;

— the achievement of a higher level of organisation of the working class, the organisation of unorganised workers in trade unions and increasing their activity;

— the strengthening of the solidarity of the working-class movement of the capitalist countries with world socialism and the forces of the national-liberation movement.

The general result of the development of the working-class movement, some of its weaknesses notwithstanding, is beyond doubt. It is expressed in the predominance of progressive trends, in the consolidation and enhancement of the social role of the working class.

Today when the objective material conditions for profound social changes are on hand the decisive role in accelerating this process belongs to the Marxist-Leninist parties. Their activity is the main condition for realising the new and constantly growing possibilities of the working class. It is through the Marxist-Leninist parties, its revolutionary vanguard, that the working class exercises its leading role in social development. The Communist parties' mass influence is a major criterion of the class and political maturity of the working class, of its ability to be the leading force in the struggle for political power and to head the fundamental, socialist reorganisation of society.

III.

When reading and rereading the stirring lines of the *Manifesto* you marvel at the insight and profoundness with which Marx and Engels defined the place and role of the communist movement in history. After all the League of Communists united but a small number of progressive representatives of the working class. But the founders of Marxism saw in the activity of the first communist organisations the source of the most powerful political movement in the history of society.

In the past 125 years the Communists — the champions of scientific socialism — have accomplished truly titanic work in propagandising the ideas of Marxism-Leninism. These ideas have become the property of millions upon millions of people who now know the nature of capitalism, the roots of its inherent vices, know the causes that give rise to wars. And the deeper the ideas of scientific socialism will take root in the masses, the stronger will be the forces of peace, the more decisive will be the opposition to imperialism and the higher will be the tide of the struggle for the revolutionary remaking of the world.

From the manifold reasons which have put the Communists in the van of the world revolutionary process I should like to single out one: the ability scientifically to express the urgent demands of social development and on this basis to formulate, at every concrete stage, a realistic programme of action by progressive social forces and to wage a selfless struggle for this programme.

An indisputable fact of our time is that of all political forces the Communists alone have proved capable of elaborating a truly revolutionary and a truly realistic programme of anti-imperialist struggle, namely, the political platform of the 1969 International Meeting of Communist and Workers' Parties.

Life has fully confirmed the correctness of the Meeting's assessment of the historic significance of the world socialist system. It is the world socialist system that is the decisive force in the defence of peace and the security of peoples, in the anti-imperialist struggle.

Only four years have passed since the Meeting of Communists proposed to all opponents of imperialism, to all fighters for peace, freedom and progress a concrete programme of united action. But we can today boldly say to our allies: look how right the Communists were when they declared that imperialism can be curbed, that this is in the common interests of all democratic and peace forces.

One has only to look at the platform of anti-imperialist struggle proposed by the 1969 Meeting to convince oneself of the tangible results achieved on every one of the nine points of this platform:

1. *All-round support to the heroic Vietnamese people.* The struggle to achieve this primary objective led to a signal result, that of putting an end to U.S. aggression.

The cessation of the war in Vietnam is of truly historic significance both for the Vietnamese people and for world development. It is a signal victory for the Vietnamese people, for all anti-imperialist fighters. It became possible thanks to the assistance of the socialist countries, the solidarity of the international working class and the united action of all democratic and peace forces.

However, I do not think we should assume that this point of the Meeting's platform may now be removed from the agenda. From the signing of the agreement to the achievement of a real political settlement in South Vietnam stretches a complicated path. Many very big tasks still have to be carried out on this path. To begin with, there is the question of securing strict observance of the agreement, its absolute and rigid implementation. There is the question of rendering assistance to the Democratic Republic of Vietnam in healing the war wounds, in building socialism. There is the question, finally, of supporting in every possible way the struggle of the Vietnamese people for the peaceful reunification of their country. All this of course calls for cementing the solidarity of the Communists and of other democratic and anti-imperialist movements with the people of Vietnam.

2. *The struggle against war for world peace, against the menace of a thermonuclear world war.* It goes without saying that this is a long-term strategic task of all anti-imperialist forces. However it may be said that in this sense the past period has been a most responsible one. The events of this period have shown that thanks to political wisdom and flexibility, revolutionary circumspection and a principled stand even in situations of the sharpest conflict solutions can be found which do not spell a thermonuclear holocaust or capitulation to imperialism. Even more. Today the Communists can rightfully speak of the mounting possibilities of averting the threat of a new world war and local wars that are unleashed by the imperialists.

In the accomplishment of this task the struggle of the working class against the war preparations themselves acquires particular significance. The arms race started by the imperialists continues undiminished. The military budgets of the capitalist countries continue to swell. Although veritable mountains of weapons have been accumulated they are still being piled up. And all this is taking place at a time when the cold war is being replaced by a détente and the leaders of

the so-called "free world" who only recently were making bellicose speeches are now talking about peace, about the desire of their governments to settle outstanding issues at the negotiating table. Although the leaders of the capitalist powers have more than once publicly admitted that the lethal weapons stockpiled by them are enough to destroy twice and three times over nearly all of mankind they continue to squander billions upon billions of dollars on producing new planes, aircraft-carriers, submarines, rockets and other means of annihilation.

Such is the logic of imperialism. It will not of its own accord take the path of completely discontinuing the arms race, will not abandon a policy leading to military conflicts. That is why the participants of the 1969 Meeting called on the working class, on the masses to increase their efforts in the struggle against the war danger.

3. *The struggle in defence of peace, the struggle, as stated in the Document of the Meeting, to compel the imperialists to accept peaceful coexistence of states with different social systems.* Here too the results of united action are most impressive. Substantial headway has been made since the Meeting was held in the struggle for the affirmation in international relations of the principle of peaceful coexistence of states with different social systems. This principle is now recorded in many treaties concluded between the socialist and capitalist states; it has become a real force of international development.

Take the documents of the Soviet-American talks in 1972, for example. They show that the United States, cognisant of the real state of affairs in the world, has for the first time officially recognised the peaceful coexistence principle as the only possible basis of relations with the Soviet Union. And not only with the Soviet Union. This strikes a telling blow at the so-called "selective" coexistence concepts which U.S. aggressive circles until very recently still tried to implement.

The aforesaid does not at all mean of course, despite what certain "ultra-revolutionaries" allege, that the struggle against imperialism in the world arena is slackening.

4. *The struggle for a relaxation of international tension.* Here mention should be made first and foremost of the significant changes that have come to pass in Europe. A decisive step has been taken toward setting up a system of security and cooperation. The treaties of the USSR and Poland with the FRG, the quadripartite agreement on West Berlin, the system of agreements between the GDR and the FRG as two sovereign German states—all this means, in effect, the international-legal recognition of territorial and political realities in the European continent. In other words, *finis* has been written to the results of the Second World War.

At the same time the groundwork has been laid for a further détente in Europe and throughout the world. Preparations are under way for holding an all-European security conference. Of course there is a sharp struggle around the problems connected with it and much still has to be done if the all-European conference is to yield effective

results, is to be an important and real step toward turning Europe into a continent of peace and cooperation on an equal basis. But what has already been achieved as a result, in the first place, of the activity of the socialist countries, is a major success of the peace forces.

5. *Active solidarity with the peoples and countries which are constant objects of aggressive encroachments by imperialism.* Appreciable progress has been achieved on the concrete demands formulated in this point.

For many years the imperialist powers tried to ostracise the German Democratic Republic. It can now be stated with great satisfaction that the wall of the international legal blockade has collapsed. There has come to pass what the CPSU predicted and what it pressed for from the very day the GDR was founded—that imperialism would be compelled officially to recognise the existence of a socialist state on German soil. This is a victory of the firm and principled course of the GDR and the Socialist Unity Party of Germany. It is a victory of the joint policy pursued by the socialist community in the international arena.

The Republic of Cuba has consolidated its international positions, the South Korean authorities have been compelled to conduct peace talks with the Korean People's Democratic Republic, the solidarity of world public opinion with the Arab peoples fighting Israeli aggression is growing stronger.

The platform of the Meeting also contained the demand to restore the lawful rights of the People's Republic of China in the United Nations. The socialist countries have always consistently supported this demand. The PRC has taken its place in the United Nations. Unfortunately, however, the Chinese leaders are using the UN against those who were the first ones to defend the rights of the PRC, against the Soviet Union and the other socialist countries and also against the countries fighting neocolonialism and for the consolidation of their national independence. The Chinese leaders want to torpedo the initiatives of the peace-loving states in this organisation and often find themselves in the same camp with the imperialists and at times in the shameful company of the Portuguese colonialists and South African racists.

6. *Solidarity with the struggle of the peoples of Asia, Africa and Latin America for independence and national sovereignty.* In the years since the Meeting was held big changes have continued to take place.

In Asia the Republic of Bangladesh has won its independence. Important progressive and democratic changes have been carried out in India.

In Africa the last bastions of the Portuguese colonialists are beginning to collapse under the onslaught of the patriotic forces. The colonialists resort to the most foul methods of terrorism as the dastardly assassination of A. Cabral, hero of the struggle for the independence of the peoples of Guinea (Bissau) and the Cape Verde Islands, shows.

The peoples of the Arab countries are defending their sovereign rights in a difficult and stubborn struggle against the Israeli aggres-

sors. Significant anti-imperialist and progressive changes have been effected in Iraq and in Syria; telling blows have been struck at the positions of the imperialist oil monopolies in these and several other Arab states.

The anti-imperialist struggle in Latin America, which is supported by progressives all over the world, is proceeding in difficult conditions.

Together with the expanding struggle of the peoples of the three continents for independence also the international movement of solidarity with their just cause is gaining ground.

7. *The fight against the fascist menace.* The events of the last few years show how timely was and is the call of the Communists to be vigilant as regards the fascist danger. Neofascist and profascist organisations are again rearing their heads in a number of countries. An obvious case is Italy where the neofascists are exploiting every avenue in an attempt to become a mass party and to penetrate into the system of state power. The democratic forces of the country, the Communists in the first place, are administering a rebuff to the fascist sorties.

One cannot fail to see the rising tide of a widespread democratic movement in Spain, Portugal and Greece. The situation has changed in the FRG where just a few years ago fascist and revanchist elements were sharply stepping up their activities. But one cannot fail to see another thing—that the danger is by no means past.

The Meeting's call to prevent the revival of the fascist plague retains its urgency.

8. *To unite efforts in the struggle against the man-hating ideology and practices of racialism.* In the past few years the African peoples have intensified their struggle against the racist regimes in South Africa and in Rhodesia. In the USA, the long struggle of the Black people has led to certain changes in the social consciousness with which fact the Government and Congress have to reckon.

It must be frankly stated, however, that here also the struggle is still a long way from the end. The problems of the Blacks, Indians, Mexicans and Puerto Ricans in the United States, of the Indian tribes in Brazil, of the aborigines of Australia, still await their solution. But the main thing is that there still exist in the world "preserves" of racialism which poison the international climate.

9. *A tireless fight to democratise every aspect of social life.* In France, Italy, Japan and in many other countries this struggle is acquiring more and more an offensive character. Its purpose is not only to defend the democratic gains of the past but also to establish a progressive democracy that would undermine the power of the monopolies and create the conditions for continuing the struggle for socialism.

Such in brief are the positive results achieved in carrying into effect the anti-imperialist programme of the 1969 Meeting, results that are most impressive.

In the years since, the CPSU, in cooperation with fraternal parties, has actively operated on all the fronts of the anti-imperialist struggle

defined by the 1969 Meeting. The CPSU is expanding its activity in this sphere in pursuance of the decisions of its 24th Congress and the Programme of Peace adopted by it, a programme which has won universal fame and the support of all peace-loving forces. The influence it is exerting on the shaping of international relations and the successes achieved by the Soviet Union since the 24th Congress in implementing the Programme—all this we consider to be the Soviet Union's contribution to the common struggle of the peoples against imperialism.

Reviewing the path traversed since the Meeting we can boldly say that the communist movement has taken important new frontiers in the battle against imperialism and for peace and the security of peoples. Of course this is no reason for complacency. At the same time the successes scored create favourable conditions for advancing further, for tackling in good time the new tasks dictated by international developments, for charting the ways and the means of accomplishing them by the joint efforts of all the detachments of the anti-imperialist movement.

There is every reason for saying that the unity of the progressive and democratic forces are acquiring certain new features and forms.

To begin with, on the international plane broad social movements are stirring which unite social and political forces that are by no means homogeneous. The Assembly of Representatives of Public Opinion for European Security and Cooperation held in Brussels (summer, 1972) is indicative in this respect. It became the most significant all-European forum of the post-war period. Together with Communists there participated in it Social-Democrats, Catholics, representatives of liberal groups, of the peace-loving forces of practically all the countries of Europe.

The World Congress of Peace Forces that meets in Moscow in the autumn of 1973 will become an important step toward uniting international progressive opinion on a still broader basis.

Secondly, in a number of countries there is a growing tendency to establish in one or another form political coalitions opposed to imperialism, monopoly rule and oligarchic regimes. As the recent parliamentary elections in France have shown such a coalition is a serious force in the fight against monopoly capital. The ruling class managed to keep its majority in parliament only by joining the forces of all bourgeois factions. But its positions have grown weaker nonetheless. The policy of the bloc of Left forces fully justified itself. The French Communist Party which was and is the initiator of a broad popular alliance received, despite an unprecedented anti-communist campaign, hundreds of thousands of additional votes and consolidated its positions in the country and in parliament.

The Popular Unity in Chile, the Broad Front in Uruguay, the New Force in Venezuela, the National Opposition Alliance in Colombia—all these diverse political phenomena speak of the general movement toward unity of the Left forces now under way in the Latin American countries.

Thirdly, the adjustment of cooperation between Communists and

Social-Democrats on international issues is another evident tendency of recent years. The foreign policy initiatives of the socialist countries which reflect the demands of the broad masses have prompted some of the more sober-minded Social-Democratic leaders to recognise international realities. They are ready to establish contact, in this or that form, with the ruling Communist parties. Of course also in the positions of this wing of social-democracy there is much duplicity, inconsistency, unsteadiness, overt and covert calculations of setting some detachments of the communist movement against others. It is well known that the dominating influence in the Social-Democratic parties is exerted by those forces which want to mount a broad ideological offensive against the socialist countries and the communist movement. There are still quite a number of Social-Democratic leaders who stubbornly keep talking about fighting communism, who repeat the false arguments of imperialism's troubadours. All this, however, only deepens the process of differentiation within the Social-Democratic parties and in social-democracy as a whole. "Everybody knows," said Leonid Brezhnev, "that in the ideological sphere we stand on totally different platforms. But in the fight for a détente we find common positions and this is very important for the peaceful future of peoples... for the cause of peace and security in Europe and throughout the world."¹⁵

Fourthly, revolutionary-democratic parties are establishing relations with the Communist parties of the socialist countries, are also expanding their ties with a number of Communist parties of the capitalist world. Some positive experience of cooperation on a national scale has been accumulated, in particular by the Communists and Ba'athists of Syria and Iraq. We cannot of course close our eyes to certain difficulties existing in the relations between the Communists and these forces. However life itself dictates the imperative need to adjust and strengthen their cooperation with the international working class, the communist movement and with real socialism all of which is, in turn, imperatively dictated by the interests of consolidating national independence, improving the life of the working people and advancing along the road of social progress.

On the whole it may be said that anti-imperialist unity is rising to a higher level.

We are confident that in the process of the joint anti-imperialist struggle ever broader strata of the population will see for themselves, from their own experience, that the Communists are right, will fight shoulder to shoulder with them for the revolutionary remaking of the world. This precisely is what the watchword of the 1969 Meeting, which is a direct continuation and development of the famous slogan of the *Manifesto*, calls for: "Peoples of the socialist countries, workers, democratic forces in the capitalist countries, newly-liberated peoples and those who are oppressed, unite in a common struggle against imperialism, for peace, national liberation, social progress, democracy and socialism!"

Lenin wrote that since the appearance of Marxism each of the epochs of world history has brought it new confirmation and new

triumphs. "But a still greater triumph," he noted, "awaits Marxism, as the doctrine of the proletariat, in the coming period of history."¹⁶ These words are coming true. The ideas of communism are victoriously marching across the globe and the old world is compelled to retreat step by step.

Having achieved great victories on the way to the objectives set in the first programme document of scientific communism Marxists-Leninists, true to the behests of their teachers, are now centering attention on the problems of today.

What, in our view, is meant by embodiment of the ideas of the *Manifesto of the Communist Party* in our time?

Embodiment of the ideas of the *Manifesto of the Communist Party* is consistent struggle to consolidate real socialism. The CPSU sees as its role in this struggle steadily to carry out the decisions of the 24th Congress of the Party, the programme tasks of building a communist society.

Embodiment of the ideas of the *Manifesto* is all-round consolidation of the world socialist community and of each socialist country.

Embodiment of the ideas of the *Manifesto* is implacability to the world of exploitation and oppression, selfless struggle against imperialism.

Embodiment of the ideas of the *Manifesto* is the struggle to attain the fundamental class objectives of the proletariat in the non-socialist part of the world and defence of its vital interests.

Embodiment of the ideas of the *Manifesto* is the struggle for the national liberation of peoples, and to consolidate and develop the revolutionary gains of the peoples who have freed themselves from the fetters of colonialism.

Embodiment of the ideas of the *Manifesto* is the struggle against the war danger with which capitalism is fraught and whose aggressive nature has been exposed by the *Manifesto of the Communist Party*, Marx's *Capital* and the entire revolutionary theory of scientific socialism.

Embodiment of the ideas of the *Manifesto* is steadfast fidelity to proletarian internationalism, consistent struggle for unity of the communist ranks, for the consolidation of all the anti-imperialist forces of our time.

Embodiment of the ideas of the *Manifesto* is irreconcilability to any manifestations of ideologies hostile to socialism—bourgeois and nationalist, reformist and revisionist; it is the struggle for the purity of Marxism-Leninism, for its creative application and development.

No matter how desperate the resistance of the class forces representing the last, but the most powerful of the exploiter formations, the international working class is more and more confidently advancing toward the world triumph of a new social system, the only one capable of resolving mankind's vital problems, that of ensuring peace, work, freedom, equality, fraternity and the happiness of all peoples, the triumph of the great ideas of communism.

NOTES

¹ V. I. Lenin, *Collected Works*, Moscow, Vol. 21, p. 48.

² K. Marx and F. Engels, *Selected Works*, in three volumes, Moscow, 1969, Vol. 1, p. 126.

³ Ibid.

⁴ Ibid.

⁵ Ibid., p. 121.

⁶ See *The CPSU in Resolutions and Decisions of Congresses, Conferences, and Plenary Meetings of the Central Committee*, Moscow, 1970, Vol. 1, p. 61; Moscow, 1970, Vol. 2, p. 38; Moscow, 1972, Vol. 8, p. 289 (in Russian).

⁷ K. Marx and F. Engels, *Selected Works*, Vol. 1, p. 125.

⁸ See Ibid., p. 126.

⁹ V. I. Lenin, *Collected Works*, Vol. 28, p. 216.

¹⁰ K. Marx and F. Engels, *Selected Works*, Moscow, 1969, Vol. 1, p. 113.

¹¹ See K. Marx and F. Engels, *Works*, Vol. 16, p. 200 (in Russian).

¹² L. I. Brezhnev, *Following Lenin's Course*, Moscow, 1972, Vol. 3, pp. 485-486 (in Russian).

¹³ V. I. Lenin, *Collected Works*, Vol. 30, p. 274.

¹⁴ Ibid., Vol. 11, pp. 213-214.

¹⁵ *Pravda*, November 14, 1972.

¹⁶ V. I. Lenin, *Collected Works*, Vol. 18, p. 585.

Society and the Environment

Academician Innokenty GERASIMOV

Man, Society and the Environment

Broadly speaking the interaction of man, society and the environment can be regarded as the utilisation by society of all possible natural resources for material production (i. e. to meet the needs for energy, minerals, raw materials, agricultural produce, etc.) and for ensuring the viability of man himself (i. e. the natural conditions for his existence). The extremely multivariuous contact of man and society with nature is due to the various influences of the environment on social activity, on the physical and moral state of every person.

The problem of the interaction between nature and society has held an important place in the theoretical heritage of thinkers throughout the ages, beginning with the era of classical philosophy. But all the pre-Marxist doctrines lacked the premise required for a truly scientific analysis of this problem. They lacked a complete understanding of the objective laws of social development and the role of the natural environment in it. It was the Marxist-Leninist theory and methodology of scientific analysis that made it possible to show the objective laws governing the multi-faceted processes of the interaction between nature and society during mankind's general evolution and the change of the basic social formations.

According to the propositions of Marxism, labour, which constitutes the basis of the relationships between man and the natural environment, caused society and its special laws of formation and development to come into being. According to Karl Marx, "labour is, in the first place, a process in which both man and Nature participate, and in which man of his own accord starts, regulates, and controls the material reactions between himself and Nature".¹

Man's labour, on which the existence and development of society are founded, is a social category. This is why people act within the framework of clear-cut social relations in their relationships with nature. "In order to produce," Marx wrote, "they enter into definite connections and relations with one another and only within these social connections and relations does their action on nature, does production, take place."²

The spontaneous utilisation of the natural environment and the plundering of the natural wealth, which started early in the history of social development, increased in the epoch of feudalism and became particularly marked during the development of capitalism and its transition to its ultimate stage, imperialism.

While clearly showing and proving the spontaneous and destructive

nature of capitalism with regard to the productive forces of nature, the founders of Marxism predicted, with scientific far-sightedness, the basic changes that would occur in the relationships between society and nature under the new social formations to come. For instance, in his very first essay on political economy, Engels spoke about the great revolution "towards which our century is moving—towards man's reconciliation with nature and with himself".³ In *Anti-Dühring* Engels points out that so long as the scientific regulation of the natural forces is not subordinated to the rational regulation of production relations among people, "...so long these forces are at work in spite of us, in opposition to us, so long they master us...".⁴

The situation is fundamentally different in socialist and communist societies.

The conclusions of Marxist theory on the problem of the relationship between society and nature have retained their fundamental scientific significance and are becoming still more meaningful today. This is due to the many new phenomena conditioned both by the radical socio-economic changes taking place in the world, and by the current scientific and technological revolution. Today the environmental issue has attracted world-wide attention.

We are in fact witnessing an excessive flow of popular scientific literature which originated in the West, and of social and political writings on the problem of man and the environment. All this literature deals with the so-called "ecological crisis", i. e., the rapidly growing danger which is threatening present and future generations and which stems from the changes made by man himself in nature. These writings assert that, as a result of the ever increasing and uncontrolled utilisation of natural resources, of the continual pollution of the atmosphere and hydrosphere, of the spontaneous reorganisation of the natural environment (mainly in the form of its devastation), various parts of the world are already faced with the complete depletion, or an immediate threat of depletion, of the natural resources indispensable for maintaining and developing the productive forces, with horrible pollution of the environment and the appearance in it of substances fatal to living matter and to man himself. The bourgeois press often states that this "human disaster" is greater and more profound than all other social and political problems; the ideologists of the "ecological explosion" call for an artificial reduction in man's requirements (partly by regulating the size of the human population), for the slowing down of technical development, and for international control to be established over the utilisation of natural resources.

Such a large amount of literature on environmental problems has naturally had a powerful impact on public opinion in many countries. For these problems directly affect the interests of every individual, every nation, and of mankind as a whole.

For both the natural and socio-political sciences, protection of the natural environment is becoming an important problem around which a sharp ideological struggle is unfolding. This is precisely why the journal of the Communist and Workers' parties, the *World Marxist*

Review, showed great initiative when it conducted an international seminar in Prague on March 29-31, 1972, on the subject "Protecting the Environment".⁵ It was attended by Marxist scholars and representatives of Communist and Workers' parties from 36 countries.

Appraising today's environmental problems, the participants in the seminar pointed out the danger presented by current bourgeois publications which exaggerate or intentionally distort the objective nature and scientific significance of these problems for the purpose of attaining certain political goals. By emphasising the necessity for world-wide concern for Earth's natural wealth and by calling for consideration to be shown for nature, these publications are actually defending the capitalists and colonialists against the just accusation that they are plundering the natural resources in both their own countries and the economically underdeveloped and dependent ones, and that they are polluting the environment all over the world.

Soviet scientists have always paid a great deal of attention to the protection of nature and the rational utilisation of natural resources so as to promote the planned development of the Soviet economy. In so doing, they proceed from the principle that to satisfy society's growing needs, nature must not only be protected, but enriched by means of its purposeful reorganisation.

Today research to this effect is expanding. In the next few years Soviet research institutes are to participate in major research on environmental problems and in elaborating a number of practical proposals on a national and international scale.

It is quite obvious that the entire problem of interaction between society and the natural environment, as well as its key aspects, bear an inherent and well-defined inter-disciplinary nature. This means that the elaboration of this problem requires major contributions from many of the social, natural and technical sciences. A more general, but complete, picture of the problem as a whole should be produced, based on the Marxist-Leninist approach.

The problem of the protection of nature and the rational utilisation of natural resources can generally be considered to be traditional and to a large extent within the scope of geography. The classics of Russian natural science — V. Dokuchayev, A. Voeikov and others — tried to solve it. In the post-revolutionary period Soviet geographical science made a substantial contribution to the study of natural conditions, to the discovery and development of the country's natural resources, and to the implementation of important measures to protect its natural wealth. The constructive ideas put forward by Soviet geography for the elaboration of scientific programmes aimed at the purposeful reorganisation of the environment in the interests of mankind have been acknowledged in the last few decades.

In the course of this research cardinal issues of contemporary science and practice are raised and elaborated: a theoretical Marxist analysis of the forms of interaction between human society and the natural environment; the development on this basis of scientific principles for optimising this interaction (including the exchange of matter between society and nature, reproduction of natural resources,

protecting nature while utilising it, and so on); finding the optimal ways and means of improving the natural environment in the process of its purposeful reorganisation; analysing the ways of raising the productivity of the biosphere and developing methods to control the processes occurring in it.

In particular, Soviet geographers have analysed the resources of the biosphere on the USSR's territory and described the scientific foundations for their rational use.⁶ Another publication⁷ analyses the economic situation in Britain, West Germany, Holland, Spain, Italy, Finland, France, Sweden, Bulgaria, Hungary, the German Democratic Republic, Poland, Rumania, Czechoslovakia and the USSR, and defines the initial methodological positions on which one must lean when further planning research and drawing up practical proposals.

The scientific analysis made by Soviet specialists in this publication brought them to the following conclusions:

The European countries, which differ in their geographical location, the size of their population, area, in the levels of technical and economic development, and in their social systems, also vary in the present state of their environment and the various measures being taken to protect it. But despite their significant differences they all have some important features in common, the chief ones being the profound anthropogenic changes taking place in the natural environment in all parts of the world.

These changes in the natural environment of the European countries are due, first and foremost, to the long exploitation of their natural resources, predominantly spontaneous or uncontrolled. The intensive exploitation of the natural resources in Europe was of course uneven as regards time and space. Apparently, exploitation of the natural resources, which began in primitive society many centuries ago, later increased continuously, and some types of resources have dwindled to a critical level today, at a time of scientific and technological progress.

Among the basic trends of scientific and technological progress which are of decisive importance for the present relationships between society and the natural environment, the following can be singled out:

Firstly, the expansion, growing intensification and profound change in the structure of today's industrial production. In this respect, the following factors are especially important for the environment:

(a) the rapid growth of the area occupied by quarries for open-cut mining of minerals or by slag-heaps. This growth has aggravated the land problem in many industrial regions of Europe, making "recultivation" of wasted lands a special task;

(b) the high degree of air pollution caused by various gases and hard particles in many industrial regions makes it necessary to apply various methods to combat factory smoke more extensively;

(c) excessive pollution of natural reservoirs by production wastes, including biologically poisonous ones, is so widespread that many reservoirs in Europe have become sewage basins deprived of life and unusable;

(d) the disposal of heated industrial waters and the increased

emanation of heat from industrial installations into the atmosphere have caused some parts of industrial regions to be overheated, creating a threat of global overheating of the air. This may entail profound and irreversible changes in nature as a whole.

Secondly, we should note the new, including progressive, trends and forms of agriculture, the timber industry and other branches of the economy which utilise natural resources. Various chemical fertilisers, pesticides, biostimulators, etc., are increasingly being used. Apart from the positive effect, i. e., higher productivity, this violates the natural cycles of the circulation of matter and energy, and promotes anthropogenic phenomena in reservoirs (siltation, overgrowth and the like), and profoundly affects the capability of the environment to preserve and maintain its natural qualities and reproduce the resources used. In particular, the possibilities for the further existence and sufficient reproduction of natural vegetation and wildlife, which can only survive in a specific environment as a result of their long evolution, are increasingly diminishing.

Thirdly, rapid urbanisation, the migration of the population from rural areas and its concentration in the cities, together with the constant expansion of urban amenities, have consequently had an adverse effect on the conditions of man's life and activity (for example, poisoning of the air and water in the cities, city noises, unfavourable microclimatic changes, and so on).

Fourthly, increasing importance in the life of present-day European society is attached to various forms of recreation, which is the principal "antidote" for the negative consequences of urbanisation. This is why there is a rapid growth of mass tourism (especially motoring) in all European countries. But tourist activities are neither adequately organised nor provided with the necessary conditions as yet. The result is that society's unfavourable impact on the surrounding nature is sharply increasing.

The key trends in the environmental measures carried out in the European *capitalist* countries are:

— the growing awareness of progressives in every country of the critical worsening of the environment, and of the increasing difficulties in utilising the natural resources, and, as a result, the spreading mass movement for nature protection, which is assuming an anti-monopoly character;

— the enforcement, under public pressure, of state-legislated prohibitive measures to protect the natural environment (restriction on the disposal of industrial wastes into reservoirs and of smoke into the air; regulation of hunting, and the like);

— the development of *organised* recreation (national parks, protected zones for rest, etc.) and greater protection for natural phenomena.

But the main adverse influences that society has on the natural environment have so far not been overcome in any of the capitalist countries of Europe. What is more, the pressure of modern industrialisation and urbanisation in these countries is rapidly increasing. The population is concentrating in the cities more and more. Pollution of the waters, air and reservoirs is growing. Many agricultural areas are

giving way to tourists' recreational and sports zones, which, however, are developed restrictively and selectively in the interests of only the more well-to-do sections of the population.

So nearly all the European capitalist countries are faced with a grim historical heritage in the form of a badly destroyed natural environment, and with the increasingly adverse impact of industrialisation and urbanisation on the environment.

The basic trends of the diverse and increased impact on the environment—the abovementioned trends connected with the latest scientific and technological achievements observed in the European capitalist countries—are also reflected in the *socialist states*. Here, consumption of the natural resources is rising and industrial wastes are increasing; the population tends to migrate and concentrate in the cities; pollution of the air and waters is taking place in the major industrial centres, and so forth. All these current consequences of society's impact on nature add to the lamentable state of the environment inherited by almost all the socialist countries from their capitalist past.

However, the chief characteristics of the socialist system are clearly manifested in the present state of the environment and in the measures for its conservation and improvement. They are as follows:

— Systematic state control over all forms of environmental pollution by production wastes and garbage, and the implementation of strict and planned measures for their restriction and elimination through new industrial technology; a concrete example of these measures as practised in the USSR is the Resolution of the Communist Party Central Committee and the Council of Ministers "On Measures for Preventing the Basins of the Volga and Ural Rivers from Being Polluted by Unpurified Sewage".

— Rapid improvement in the principles and methods of planned construction of new, and modernisation of old, towns aimed at creating more favourable conditions for social and personal life and for the recreation of the urban population as a whole; the slackening and elimination of all the adverse consequences of modern urbanisation; a concrete example of these principles as applied in the USSR is the General Plan for the Reconstruction and Development of the City of Moscow.

— The scientific and technical elaboration and planned implementation of programmes for the reorganisation of nature over vast territories for the purpose of utilising the natural resources rationally and for their reproduction, for the conservation and further improvement of the natural environment; a concrete example of such programmes as implemented in the USSR is the government decision for the rational development of natural resources in the Lake Baikal basin and the conservation of the unique properties of this lake.

— A social policy of creating recreational zones for use by the working population as a whole.

— The extension and implementation of various state measures for the conservation of natural reserves, for the protection and enrichment of their flora and fauna.

In the resolutions of the 24th Congress of the CPSU, a comprehensive solution to all these problems is regarded as one of the prerequisites for building the material basis of communist society in the USSR. An important step towards implementing these resolutions were the 1972 Supreme Soviet decision "On Measures for the Further Improvement of Nature Protection and the Rational Use of Natural Resources", and the decision "On Strengthening Nature Protection and Improving the Use of Natural Resources", adopted by the CPSU Central Committee and the USSR Council of Ministers. These documents are a convincing example of a humane and optimistic approach to the problem. This approach is characteristic of a country that is building a communist society. The resolutions give a realistic evaluation of the present situation from the point of view of scientific communism and include an extensive programme of science-based measures for a practical solution of the problem. At the same time these documents set new large-scale assignments for all the natural, technical and social sciences, including geography.

One of the most important of these tasks is, in our view, the elaboration of a general scientific plan for the utilisation and reorganisation of nature in the USSR; its chief purpose should be to provide optimal living and working conditions in a developed socialist society. This general plan requires, among other things, the elaboration of the theory and methods for the scientific forecasting of the positive and negative consequences of economic activity in the natural environment; prognosis of and effective struggle with spontaneous phenomena in nature, especially those of a catastrophic character; methods of utilising natural resources which would ensure their protection, as well as their extended reproduction; an up-to-date scientific theory for the purposeful control and regulation of the natural and anthropogenic eco- and geosystems.

The research conducted by Soviet scientists has led us to the following conclusions, which are of theoretical value:

All mankind today is really faced with rapidly deteriorating ecological conditions, with more intensive development of spontaneous processes of a destructive character, and with growing difficulties as regards the further use of natural resources. Consequently, the problems of the effective utilisation of the natural resources, prevention and elimination of spontaneous destructive phenomena, protection and planned improvement of the environment, are of great importance for all mankind today.

The natural environment and its resources must be regarded as most valuable *national (social) property* requiring special care and systematic measures to ensure a prosperous future for the population of individual countries and for all mankind, particularly with reference to the ecological conditions for their further existence. Private ownership of natural resources in capitalist society is in glaring contradiction with the present situation as regards the environment, and it is an historical anachronism.

The contradictory influence of today's scientific and technological revolution is clearly manifested in the present state of the natural

environment. On the one hand, the growing technical impact accompanying it and the augmented production of materials and energy entail increased and diverse "pressure" on the environment. On the other, the outstanding achievements of science and technology make it possible to place new resources and natural forces at the service of society and to meet the numerous requirements of people more fully, and provide us with powerful means for improving the natural environment.

This last-mentioned goal, often called the *purposeful reorganisation of the environment*, must be brought to the fore. Its essence lies in the general task of creating the environmental conditions necessary for human life at a time when they are being continuously changed under the impact of scientific and technological progress. The most important of these conditions should be the constant intensification of many natural processes taking place in the environment (biological productivity, for instance), which enables it to be utilised for various purposes, and also the acquisition by the environment of absolutely new qualities promoting a higher standard of living for man.

Man is capable of not only averting the further worsening of the environment, but of ensuring its purposeful improvement. This was confirmed, as we have already mentioned, by the founders of Marxism, and is borne out by the entire historical development of the relationships between society and nature up to its present stage. For instance, Marxism has always rejected the Malthusian theories, both old and new, that the natural resources, because of their limited quantity, fail to provide for the material requirements of the world's constantly growing population.

It is an indisputable fact that the continual progress in the scientific and technological methods of exploiting and utilising the natural resources gives great opportunities for society to cover its demands. The current scientific and technological revolution offers many new proofs of this. On the other hand, the classics of Marxism foresaw the increasing devastation of the environment resulting from the spontaneous utilisation of the natural resources under capitalism. They predicted a radical change in the relationships between society and nature under socialism.

Indeed, the capitalist system, with its private ownership of the means of production and spontaneous exploitation of the natural resources in the interests of the ruling class, including the conversion of whole countries and regions of the world into raw-material appendages of the imperialist monopolies, bears direct historical responsibility for environmental damage all over the world. The desire of the competing firms and monopoly amalgamations to gain economic advantages over one another at the expense of the working people's interests, and those of the dependent and exploited nations makes capitalism incapable of radically solving the problems of environmental protection and improvement in the interests of all mankind and future generations. This, of course, does not rule out the positive effect of certain measures carried out by the capitalist states as a result of the struggle of progressives for the conservation and

improvement of the natural environment; nor should we disregard the research conducted there for this purpose.

The loftiest goals of socialist and communist society, which consist in the maximum satisfaction of the material and cultural needs of all members of society with due regard for the requirements of future generations, create quite a different attitude to the natural environment. The establishment of the socialist system leads to the abolition of the private ownership of all the basic means of production, including all types of natural resources. The land, its minerals, forests, vegetation and wildlife, and other natural wealth completely become national property. Their utilisation is planned and purposeful; it is based on sound scientific measures carried out by the state in the interests of society as a whole. All this creates fundamentally new social prerequisites for a uniform, inherently coordinated national policy towards the utilisation of natural resources, the conservation and further improvement of the natural environment.

This socialist policy is directed at:

— a complete stoppage of air and water pollution by substances harmful or unfavourable to human life as a result of the development and introduction of the relevant technology, and establishing control over the application of poisonous chemicals and other substances which are used in agriculture, forestry and other industries, and which cause a profound violation of the natural processes and hamper their conscious regulation and control;

— creating favourable living conditions for the entire population in the cities and other populated areas through scientific urban development and regional planning which eliminate all the adverse consequences of modern urbanisation;

— rational utilisation of all types of natural resources, providing for the natural reproduction of retrievable resources and well calculated consumption of irretrievable resources;

— purposeful reorganisation of natural conditions on large territories (regulation of river flow and inter-basin movement of water, improvement of drainage and irrigation, field- and water-protective afforestation, cultivation of national parks, and so on), ensuring effective and comprehensive utilisation of natural resources, action against natural disasters, and environmental improvement for work and rest;

— preservation of all genetic aggregations in living nature, which were created during the evolution of all the main ecological systems, as an initial base for raising new species and cultured plants and animals, and for conducting research work on maintaining and raising the biological productivity of the environment.

At the present stage in the development of science and technology, it is possible to avert the danger of the world environment becoming progressively worse, more and more polluted. It is to be emphasised once again that capitalism bears the bulk of the responsibility for the plundering, both in the past and at present, of natural resources, especially in the economically backward countries. That is why many destructive phenomena in the natural environment are of a global

character, the effective solution of ecological problems is directly linked with the principal social problems of today. Only peaceful coexistence, extensive international cooperation on an equal basis, economic development in all countries, the extensive exchange of scientific and technical know-how, and coordinated international measures can ensure effective and purposeful reorganisation of the natural environment and its preservation in the interests of all mankind.

NOTES

¹ K. Marx, *Capital*, Vol. I, Moscow, 1965, p. 177.

² K. Marx and F. Engels, *Selected Works*, Vol. I, Moscow, 1969, p. 159.

³ K. Marx and F. Engels, *Works*, Vol. 1, p. 551 (in Russian).

⁴ F. Engels, *Anti-Dühring*, Moscow, 1969, p. 331.

⁵ See *World Marxist Review*, No. 6, 1972, p. 4.

⁶ See *Resources of the Biosphere on the Territory of the USSR*, Moscow, 1971 (in Russian).

⁷ *The Present State of the Natural Environment (Biosphere) on the Territory of Europe and Ways of Protecting and Improving It*, Moscow, 1971 (in Russian).

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Man and the Natural Environment: Problems of Their Interaction

The problems of man's relationship to the natural environment, which are among the many issues facing civilisation today, are acquiring increasing significance. And the nature of these problems is undergoing an intrinsic change. Two or three decades ago, their more acute aspects were ascribed to "shortages" of all kinds, while man's surroundings were regarded predominantly as the aggregate of resources without which production is impossible. Today the threat of man exerting excessive influence on nature is being brought to the fore. The biosphere has begun to be studied in terms of its ability to assimilate what is produced; the task is to achieve optimum combination of the man-inspired scientific and technological development of today with the objective processes taking place in the biosphere.

Scientific and technological progress, while increasing the amount of natural resources being utilised and the degree of man's influence on the environment, requires society to be more responsible for the preservation of the natural environment and for the changes being made in it. The problem of interaction with the natural environment is becoming a topical issue for practical activity and science. It also presents great philosophical interest.

A CRITIQUE OF "ECOLOGICAL PESSIMISM"

The problem of the interaction between man and the physical environment has become a subject of ideological disputes today. Besides propounding a pseudo-optimism that seeks to veil the threat of a serious ecological crisis facing the developed capitalist countries, the bourgeois literature of the West expresses grave concern about the state of the environment. This concern is manifested in numerous works, for instance, in the publications of what is called "The Club of Rome", organised a few years ago by the Italian economist and businessman A. Peccei for the purpose of studying the interaction between society and nature and examining the different variants of mankind's further development.¹

Attention is centred on the book entitled *The Limits to Growth* written by a group of scientists (the title page gives the names of four co-workers of the Massachusetts Institute of Technology headed by Professor D. H. Meadows)², and on the book *The Closing Circle*, by B. Commoner, a prominent American ecologist.³ These books are imbued with anxiety about the near future of mankind with reference to its interaction with the natural environment. They are interesting

for their attempts to give a comprehensive analysis, a quantitative forecast and models of many aspects of society's development with regard to its interaction with nature.

The Limits to Growth, like J. Forrester's *World Dynamics*⁴ published earlier, makes an attempt to give, on the basis of a systems analysis, a numerical forecast of diverse variants of mankind's future development. B. Commoner's book very thoroughly examines environmental pollution, mostly in the USA, shows the socio-economic causes of this pollution and other violations of the natural environment equilibrium, and makes observations on the ways of reshaping the economy so as to optimise man's interaction with nature.

Since the calculations which serve as the basis for the prognostic conclusions made in *The Limits to Growth* are not yet in print, we cannot judge of their validity; we shall therefore concentrate on the methodological side of the book. It should be pointed out that irrespective of whether the calculations are correct or not, many of the propositions put forward in all the works mentioned arouse serious objection.

Thus, *The Limits to Growth* attempts to take a systems approach to forecasting. According to the authors, this approach consists in taking several factors—the size of the population, the volume of resources, the degree of pollution, etc.—bringing out the total effect of their operation under various changes of each of them. But under this approach the dynamics of each parameter is supposed to be independent of that of the others; the change in one of them is analysed assuming the rest to be invariable, while the integral characteristics of the system of human society's parameters escape attention. The authors believe, for instance, that if the efficacy of utilising natural resources were considerably increased, this would remove the threat of starvation and neediness and cause such a sharp growth of production that the corresponding growth in environmental pollution would make human life on Earth unbearable.

As a matter of fact, human society as it exists is not a linear system. The numerous characteristics of its development are closely connected with one another by one-way or two-way links. In our opinion, the growth of each parameter of development should not be extrapolated on the basis of present-day tendencies without taking these relationships into account.

According to the authors of the books mentioned, the chief threat to mankind arises as a result of the depletion of natural resources and pollution of the natural environment, which, they say, are the *inevitable consequence* of population growth and the still greater growth of production and consumption. But there are at least three significant objections to that.

1. One must note that unlimited growth of the population cannot serve as an objective of the social man. It is common knowledge that population growth is closely linked with economic and social conditions and that it tends to decrease as the popular welfare and the degree of urbanisation ascend. As the influence of such limiting factors as diseases and famine lessens, the role of conscious birth

control increases. We do not find anything impossible or impermissible in the fact that a consciously developing human society should find it necessary to regulate its size (either increase or decrease it), or in the fact that society—in the socialist countries—has begun to regulate its occupational structure.

When speaking about the population, it is methodologically incorrect to draw all attention to its size only. The size of a population has nothing to do with its plight. Such an obviously negative trait in the plight of the population as unemployment, which is ever existent in the developed capitalist and in the developing countries, is in no way accounted for by local "demographic explosions", but by quite apparent social and economic causes.

Even when the total able-bodied population more or less corresponds to the potentialities of production, a significant role is played by its *occupational* structure—its division according to profession, speciality, general educational level, interests, etc. This division is the result of cadre training in a wider sense of the word. The training of cadres should apparently correspond to the tasks of further developing production, which in turn must be in keeping with the common social goal. The rational training of every new generation for the fulfilment of its role in production is based primarily on the long-term prospect of social development. Training must also correctly combine the determining and utilisation of the interests and abilities of every individual with the tendencies of social development.

Hence, regulation of a number of parameters that determine the condition of society is, in our view, essential and it is already being effected under socialism. Whether "self-regulation" is enough to enable a population to satisfy its requirements will be shown by the future.

2. B. Commoner, J. Forrester, D. H. Meadows and the other authors attach to the aggregate natural resources a certain magnitude (as a measure of the possibilities for satisfying mankind's needs), initial for the present, which tends to diminish as time passes. We cannot agree with this. It is wrong to absolutise the *current view* on natural resources (as a source of everything that man needs). It must be borne in mind that every specific viewpoint on whether a given element of the environment is a natural wealth, and on the ways of utilising it, undergoes a radical change, as testified by history.

Naturally, the total volume of each of the irretrievable parts of the natural resources is dwindling. But this does not mean that the possibility of satisfying human requirements connected with it is diminishing. On the contrary, with scientific and technological progress, this possibility grows on account of each given item of the natural resources being utilised with higher efficacy, and as a result of the search for fundamentally new ways of satisfying a given human requirement. If it were not for that, man would have long been at a deadlock. The present world population, even if it were much smaller, would not, for instance, have been able to make a living by hunting, as our remote ancestors did.

As to the retrievable natural resources, we must take due account

of the change in the methods of utilisation as well as of the possibility of transforming the whole cycle of renovation and of heightening the efficiency of the resources themselves.

3. We cannot agree with the assertion that the growth of pollution and other changes in the natural environment unfavourable to man are the *inevitable* results of the development of production and of population growth.

B. Commoner made a detailed study of the rapidly growing pollution of the air, reservoirs and soil in the USA over 25 postwar years, showing that the enormous increase of pollution (roughly 7-8 times per head of the population) is due not to the growth of production, much less to the growth of per capita consumption, but to changes in production and consumption (the wide use of chemical fertilisers, synthetic materials, detergents, and bigger motor vehicles)—changes brought about by the monopolies' drive for higher profits. It is socio-economic factors, and especially the fact that the interests of the monopolies in these and many other issues run counter to the interests of society, that constitute the principal cause of the undesirable interference in the natural environment.

Modern science and technology are elaborating methods of production based on complete technological cycles which exclude the throwing out of waste products into the outer environment or which reduce these products to an insignificant amount, and methods of reprocessing waste into building materials. In the field of agriculture, highly selective biological means of combating pests, and fertilisers that have no harmful side-effects are being created. But the application of many of these methods may happen to be less profitable to the private owner of enterprises or farmlands, and the reconstruction of industry for the switch-over to any of them may require enormous sums.

PROGRESS AND THE BIOSPHERE

Having failed to understand the true relationship between current scientific and technological development and the environment, some bourgeois researchers come to the conclusion that the conditions of the biosphere today are already becoming a factor that hampers social progress.

Undoubtedly, as Gus Hall noted in his book entitled *Ecology: Can We Survive Under Capitalism?*, "pollution is not only a serious social problem for the future but it dangerously affects the lives and health of people today. It threatens all life on this planet".⁵

There is, however, nothing fatal in the problem of interaction between society and the environment; it can and will be solved not along the lines of stagnation or reverse development of history, but with the further advancement of man.

There is, of course, the unrealistic demand that man should not "interfere" in nature, that he should leave the natural environment as it is. Unhealthy pollution can and must be averted, but certain

changes in the natural environment are inevitable, if only because of the partial dispersion of the substance of any articles and materials while they are in service (we shall have more to say about this later on). There has to be some change in the world's heat balance as a result of the heat released when energy is expended.⁶ Certain purposeful reorganisations of the natural environment—the irrigation of arid districts, the remaking of the river systems for power and transport purposes, etc.—are necessary for the very existence and development of mankind. The scale of such reorganisations will grow.

This makes it imperative to work out methods of calculating the direct as well as remote consequences of any influence on nature, so that the separate elements of this influence are harmoniously tied up with one another, resulting in the creation of more favourable conditions for man on our planet. So it is not the maintenance of a static "natural balance", but a systematic, purposeful and well-calculated reshaping of nature on our planet that should become the basis for interaction between society and the natural environment.

We shall duly return to the relationship between society's growing requirements and the possibility of fulfilling them, and to the problems of changing the natural environment. But now let us draw attention to what the authors in question (B. Commoner, J. Forrester, D. H. Meadows and the co-authors) consider to be the basic, inherent causes of a coming crisis in the interaction with nature, and to the means they propose for averting this crisis.

According to Forrester, Meadows and the co-authors, man has an irrational characteristic—an "urge for growth", a desire to increase everything without exception. Let us note that to calculate man's characteristics and goals on the basis of his biological nature alone forfeits the possibility of making a sound analysis of the prospects of *social development*. If we do so the analysis would lack concrete and realistic social content and acquire a formal character. The social conformism that seems to underlie the forecast (*though* its authors do criticise capitalism on many points, and for this they are attacked by orthodox bourgeois theorists) cannot fail, in the final analysis, to bring conservative features into it. Moreover, the specific type of "man—nature" relationships formed under capitalism is, knowingly or not, absolutised and extrapolated to all mankind and to the world as a whole. But in the world of today the various parts of mankind are developing differently, and the tendencies of their relationships with the natural environment vary. In studying the problems of the biosphere it is absolutely necessary to take account of the fundamental differences between the capitalist countries' attitude towards the natural environment and that of the socialist countries, and also to give due consideration to the progressive changes which have been taking place in the Third World countries.

The achievement of optimum interaction with nature under socialism had long been predicted by Marx: "Freedom in this field can only consist in socialised man, the associated producers, rationally regula-

ting their interchange with Nature, bringing it under their common control, instead of being ruled by it as by the blind forces of Nature; and achieving this with the least expenditure of energy and under conditions most favourable to, and worthy of, their human nature."⁷

This circumstance is taken into consideration by B. Commoner. In his book he repeatedly returns to the idea that the basic stimulus for the development of a society based on private enterprise—the ambition to make the biggest possible profit—creates a clash between the interests of the private owner of enterprises or natural resources and the interests of society. This is the very clash which the prominent 19th century Russian geographer A. Voeikov⁸ considered to be the basic cause of man's unwise and unfavourable influence on nature.

Consistently examining various aspects of the ties between the "environmental crisis" and socio-economic factors, Commoner comes to the conclusion that this crisis cannot be avoided unless the present socio-economic system in the capitalist countries is basically changed. He admits that socialist society, as outlined by Marx in his theoretical works and as exemplified by the Soviet Union, has important advantages over capitalist society as far as optimum interaction with the natural environment is concerned. While he complains, and with some good reasons, that the "fulfilment of plans" often prompts the heads of Soviet enterprises to treat the natural environment no better than their American counterparts do, Commoner correctly observes that the Soviet public and government have in recent years been well aware of the danger of an ecological crisis and are taking realistic and increasingly vigorous measures to avert it.

We are far from content with the degree of optimisation of the biosphere and we should like to increase it at the expense of the expenditure on armament, defence and military research that socialist society has been compelled to undertake.

Despite these adverse factors, socialist society is on the whole optimising its interaction with the natural environment, thereby opening a perspective in this field to all mankind.

In this connection, it is of fundamental importance to include the problems of environmental protection and the rational utilisation of natural resources in the well-known Peace Programme proposed in the CC CPSU Report to the 24th Congress of the CPSU and endorsed by the Congress. The Soviet Government is consistently carrying out this Programme.

In the Soviet Union, like in other socialist countries, pollution control and the rational utilisation of natural resources follow from the very essence of the social system. As the national economy develops, more and more attention and allocations are devoted to these purposes. Comprehensive measures for nature protection become an integral part of the nation-wide plans for economic and social development.

The USSR is carrying out large-scale meliorations to prevent soil erosion by wind and water, and improving the utilisation of its water,

timber and mineral resources. Valuable and rare animals have been put under state protection; the fishing industry is being improved. Keen attention is paid to measures to prevent air and water pollution, to improve the system for supplying towns and other populated areas with heat and gas, and to combat noise. Considerably bigger sums are allotted to measures for nature protection and to the construction of installations for sewage cleaning, gas scrubbing and dusting. In recent years the CPSU Central Committee and the USSR Council of Ministers passed a number of resolutions on measures to prevent pollution of the Caspian Sea, the Volga and Ural basins, Lake Baikal and other areas. The USSR Supreme Soviet has endorsed the fundamentals of all-Union legislations on land and water conservation and public health. The corresponding laws have been passed by the Union Republics.

Questions relating to improvement of environmental protection and rational utilisation of the natural wealth were widely discussed in September 1972 at the Fourth Session of the USSR Supreme Soviet. The Supreme Soviet has declared nature protection and optimum utilisation of the natural resources a major task of the state; the aim is to create more favourable conditions for health, work and leisure. In December 1972 the CPSU Central Committee and the USSR Council of Ministers passed a comprehensive resolution on enhancing nature protection and improving utilisation of the natural resources.⁹

All this shows that socialist society wants to harmonise its relationship with nature, and that it is taking practical steps towards this end.

The Soviet Union considers broad international cooperation in promoting proper interaction between society and the natural environment to be imperative. The agreement on environmental protection signed by the governments of the USSR and the USA in May 1972, and the Soviet Union's cooperation in this sphere with the member countries of the Council for Mutual Economic Assistance, with France, Sweden and Finland, accord with the urgent necessity for mankind to set a definite objective: to optimise its interaction with the natural environment and draw up a long-term coordinated programme for achieving it.

STAGNATION OR PROGRESS?

Examining the various ways in which the forecasted parameters may be combined until the middle of the next century, J. Forrester and the authors of *The Limits to Growth* say that if they (the parameters) continue to swell according to the present tendencies, in some 50-70 years' time a somewhat speedy extinction of the world population may begin. In saying so they intimate that this "universal plague" will affect the Third World countries least of all, provided they do not undergo industrialisation.

B. Commoner is not so definite about the outcome of the current

"environmental crisis". Nonetheless, he considers it a world-wide catastrophe.

According to the authors of *World Dynamics* and the *Limits to Growth*, the only way of avoiding this sad fate is to halt the growth of all parameters (population, consumption, pollution, production) and to establish universal stabilisation, or "world balance". To give philosophical backing to this regress the authors refer to the cyclical theory and to the famous quotation from Heraclitus: "In a circle the beginning and the end coincide."¹⁰

The "closed circle" concept is advanced by B. Commoner too. While correctly drawing attention to the fact that one-sided anthropogenic processes on this planet could be permissible as long as the quantity of matter or energy involved are insignificant as compared with the natural phenomena, he insists that man should reorganise his entire productive activity in such a way that the resulting matter and energy cycles necessarily close. In his point of view, this requires complete and harmless "assimilation" by the natural environment of every end product of human activity.

If we take the prevailing matter cycle and energy balance as an immovable basis, then the introduction in economic activity of substances not assimilable by the natural environment (such as synthetic fibres, detergents, mineral or atomic fuel) is impermissible, for this is ultimately conducive to an "imbalance" of the geochemical, power and other elements of the natural environment.

In view of this, Commoner thinks it necessary to reorganise industrial and agricultural production first in the USA and then in the rest of the world. The switch-over to an "ecologically sound" industrial and agricultural technology, according to him, should be accompanied by the introduction of regulations for population growth, for the output of production and for the duration of production cycles. The establishment of stable and well-balanced conditions is also implicated.

The authors of the books under review, then, seem to believe in a peculiar concept of ecological pessimism which, irrespective of their intention, is tantamount to an apology of stagnation and rejection of the humane idea of social progress. We believe this approach to be an extremity as regards the rational programme for optimising the biosphere.

Contrary to what the neo-Malthusians say, the potential feasibility of satisfying man's basic requirements (this feasibility is determined by comparing our planet's resources which are known and can be used at a given time, the methods of production and the size of the world population) has always grown faster than the population. This is a specific feature of human development. In his polemics with the Malthusians of his day, Lenin noted that the "law of diminishing returns" could be applicable if technology remained unchanged, but that it was invalid against a background of technological advancement.¹¹ Society is continuously changing the manner of its interaction with the environment—the modes of production in a wider sense.

"Malthusian deadlocks" could arise at any stage of mankind's development if technology made no progress and if the modes of production did not change. Such catastrophes resulting from the accelerated growth of the number of organisms in their environment, with the volume of resources used remaining unchanged, at times do occur in the biosphere. In this case an upset balance can be established only through a decrease in number—as a result of extinction or mass migration from the area. Animals and plants cannot change or raise the effectiveness of their interaction with the environment, except in the extremely slow process of biological evolution. But this principle does not apply to man.¹²

In his rough draft of Introduction to *Dialectics of Nature*—"From the History of Science"—Engels wrote: "The normal existence of animals is given by the contemporary conditions in which they live and to which they adapt themselves—those of man, as soon as he differentiates himself from the animal in the narrower sense, have as yet never been present, and are only to be elaborated by the ensuing historical development. Man is the sole animal capable of working his way out of the merely animal state—his normal state is one appropriate to his consciousness, *one that has to be created by himself*".¹³

The biosphere of our planet is the product of the metabolism of organic forms as well as the *object of human activity*. So the biosphere must be examined in collation with the development tendencies of human activity. The declarations against chaotic violations of the natural state of the biosphere are fully justified. But we must not consider this state to be the only one possible. In our point of view, it is possible (and it will become inevitable one day) to change the biosphere purposefully and systematically—to increase its effectiveness in a wider sense so as to meet the growing needs of human society. Man is capable of making progress provided that in his activity he takes the tasks of optimising the biosphere into account. Optimising the biosphere is, in substance, a way of optimising human activity.¹⁴

THE BIOSPHERE AND HUMAN ACTIVITY

The sharp growth of human activity resulting from the current scientific and technological revolution is radically changing the relationship between society and the natural environment. Instead of the weak man formerly subdued by nature, we now have the technically powerful man of today who is sometimes capable of remoulding his surroundings.

For a long period of time in mankind's history, natural resources were believed to be *boundless* as compared with the relatively meagre possibility of their being used by the small population of the world. In his interaction with nature man thought his chief task was to search for resources and for more effective means of extracting them from the natural environment.

The depletion of some items of natural wealth, especially minerals, at the turn of the present century has reminded us of their *finite quantity* as compared to the rapidly growing and apparently *boundless* requirements of man. Many researchers have estimated the amount of irreplaceable resources on this planet and the probable time of their exhaustion. They regard the depletion of some important items, such as coal and oil, as a serious threat to the prosperity of man. And they believe that a shortage of raw materials or fuel will cause a crisis in the interaction between man and nature.

But in fact two processes are developing: on the one hand, more and more mineral deposits are being discovered, leading to a rapid *augmentation* of their volume available in the world despite growing (but less rapid) consumption. On the other, with equal speed man is learning to transform one type of matter into another—to produce "anything from anything", thereby lessening his dependence on certain types of natural wealth. Last but not least, new ways of supplying man's needs for food, energy, materials, etc., are being opened up.

It is difficult to give a quantitative assessment of man's ability to do all that, but numerous examples have shown him to be capable of coping with the exhaustion of any item of the natural resources. Atomic fuel has already appeared although certain reserves of mineral fuel, far from running low, continue to increase. While huge stocks of agricultural produce are still available, a synthetic fibre industry is already flourishing and the first successes have been scored in creating artificial food (for animals only as yet) and other things.

This means that all matter on Earth and cosmic matter that will later be accessible for utilisation by man will gradually become a single and universal measure of natural resources as men will be getting to know how to produce "anything from anything." So far the irretrievable expenditure of matter is inconsiderable; it takes place when generating atomic and thermonuclear energy and when launching devices into outer space. It makes up only an insignificant part of the constant exchange of matter between Earth and the cosmos. Every day Earth receives several thousand tons of matter when meteorites and various cosmic particles fall to the ground, and loses a few tons due to the dispersion of gases in the upper layers of the atmosphere.

This too makes the total volume of natural resources practically "infinite" compared with the possibilities of their being used by man, all the more so since cosmic objects comparatively near to Earth are most likely to be utilised too.

Optimisation of the biosphere requires that the development of production should in no way be accompanied by an increase of waste products. This is difficult to achieve because elimination of these products comes up against the laws of conservation: in a closed system any method of eliminating waste will include it in the natural process. And the very concept of a "closed system" is unstable. What is now beyond the bounds of a closed system may

later become an inherent element of a broader supra-system. For instance, we can get waste products out of town by throwing them into the upper atmosphere, where the speed of wind is greater. But when the entire atmosphere has been saturated with these products, the height of chimneys will be unimportant. In the broader closed system that includes the atmosphere the laws of conservation of waste will still be effective. Because of this, more radical means of eliminating waste are needed (chemical treatment, purifying installations, etc.). Many problems in this field are examined by B. Commoner.

Those elements which are today outside the sphere of application of our experience may enter a closed system of a higher order which will serve as the basis for the science and technology of the future. And the concept of biosphere as the realm of the living is generalised. It signifies not only the outer envelope of Earth but also its adjacent space and deeper areas from where man will derive the necessary raw materials for his further development. The spatial expansion of the sphere of human activity determines the contradictory nature of the relationships between the finite and the infinite on the plane being examined.

Ecologically unacceptable pollution and waste now appearing in the process of production can and will be definitely ruled out. But, as mentioned earlier, we cannot rule out the weaker but growing change brought about in the composition of the natural environment as a result of the inevitable dispersion of part of the substances composing the useful articles in service. As a result of corrosion, for instance, a small percentage of the substance of iron-ware is dispersed. The natural environment is constantly being "enriched" (or "contaminated") not only by production waste but also by various elements composing the useful products of our activity. The different substances introduced into the natural environment as a result of natural geophysical processes first disperse, but ultimately concentrate in organisms as a result of biological processes.

In our view, the harm that may be caused by this inevitable dispersion of matter can in principle be eliminated by introducing compensating processes; for instance, through controlled concentration of biological agents or by neutralising the effect of some substances by others. This problem can become very serious. To resolve it, it is essential to devise methods of sufficiently precise calculation and methods of controlling certain processes in the biosphere.

Interesting and important problems arise as a result of change in the energy balance of this planet.

The entire activity of man is attended with the release of heat. Anthropogenic heat now amounts to 0.01-0.02 per cent of the heat energy coming from the sun—a very small percentage as yet. But with the present tendency of the energy potential to grow, it is expected to rise to 1-2 per cent in 50-70 years, and this may have serious consequences.

In this connection we must remember that the processes taking

place in the natural environment are at times unstable. The instability of meteorological processes is utilised in changing the weather, preventing hail, dispersing clouds and so on. But such instability may also occur during the formation of climate. Such phenomena as the rise of the temperature by 1-2 degrees can thus be trigger mechanisms capable of converting large-scale processes from one state to another.

This has a good as well as a bad aspect. Good because it enables us to use comparatively small means to achieve big changes, including a change of climate. (True, an arbitrary "choice" of climate is of course impossible due to the close connection between all natural factors.) Bad because equilibrium might be disturbed unnoticeably regardless of our wish.

There is no avoiding the release of additional heat,¹⁵ but preventing its undesirable consequences is possible in principle, for instance, by regulating cloud to compensate the effect on the heat balance.

Besides matter and energy, information systems connected with cybernetics will also play a more and more significant role in optimising the biosphere. In the light of this, man and the natural environment are regarded as inner elements exchanging information within the broadest possible system (or rather subsystem). This system is capable of self-regulation, while its elements (man and nature) have in large measure lost this capacity irrespective of each other. On this plane nature is not just something external in relation to man's activity; it is an inherent requisite (within the framework of sociobiogeocenosis).

The regulation and increasingly radical reorganisation of nature by man in conformity with the progressive development of society will become more and more significant. This regulation will require ever more scientific information and various technical devices.

It would be interesting to examine the growing possibilities for the expedient reorganisation of the natural environment.

For a long time in human history, natural phenomena provided limited possibilities for human existence and activity. They could not be overcome and their unfavourable influence in many cases caused the chief danger to man.

Today the stage in which man has been adapting himself to the natural environment and defending himself from the adverse effects of elemental phenomena is coming to an end, and this has enabled him to work in any conditions prevailing on our planet.

The main danger facing man now is his own inadequately controlled influence on nature. But this in no way means a fatally irreversible slipping down to ecological disaster: social progress makes it possible to avert this danger.

While realising the new possibilities of expediently influencing the natural processes, it is imperative to avert the immediate as well as the temporally remote adverse consequences of this influence. Man normally predominates, and if he observes certain conditions he can harmonise his relationship with the environment.

The problem of harmonising the relationships between man's technological activity and the natural environment has to be resolved in several stages. The process involved is not monotypic, but a constantly developing and contradictory one, and, in the epoch of the scientific and technological revolution and of the complete mastery of nature by man, it requires systematic efforts and a radical reconstruction of the very structure of human activity.

At the first stage of this reconstruction, the separate measures for environmental protection (like the introduction of cycles in chemical production, the building of a variety of purifying installations, higher chimneys for industrial buildings, and the replacement of internal combustion engines with electric ones in urban transport) must be pooled into an integral system to compensate the consequences of production and consumption that are harmful to the biosphere. What is needed is reinforcement of the *compensating* factor in all *productive* activity so that it may achieve outstanding efficiency in the next two or three decades. But in the future, with the development of a new, "wasteless" technology of production based on closed cycles, as we learn more about the natural and artificially caused processes in the biosphere and thus become more competent to control the biosphere, certain compensating activities will become superfluous. Man's productive activity as a whole will have to incorporate the aggregate processes taking place in the biosphere so that all the elements of that activity—those for which man is directly responsible as well as those proceeding under his influence and control in nature—from a harmonious whole.

Any rationally organised agricultural enterprise provides a model of such system today.

In this respect logical constructs absolutising the chaotic influence of man on nature are untenable. Doing so would mean that man can develop his organisation and regulation only by increasing chaos and disorganisation in the environment. To optimise the relationship between man and nature we must treat the entire natural environment not as something separate from, or hostile to, man, but as one of the principal elements in the sociobiogeosystem.

Man's responsibility for his future necessarily entails responsibility for the fate of nature, because any rupture between the above-mentioned subsystems would mean degradation of the living and, ultimately, the extinction of man. (As is known, neither radiation, nor chemical pollution, nor other adverse consequences are fatal to some lower forms of life). The adverse factors of techno-urban civilisation manifested in recent years, far from casting doubt on the Marxist concept of "humanising" nature in theory and practice, require that it should be further developed and enhanced.

As we have already mentioned, throughout history man has been increasing not only the expenditure of irretrievable natural resources but also the cultivation of retrievable natural wealth. This practically means better organisation of that element in nature which is included in economic activity and naturally regarded in conjunction with that

part of economic activity to which it belongs. Having started to cultivate retrievable resources and reorganise the natural environment on a world scale (that is, to organise the "biotechnosphere"), we are *raising* the degree of organisation of the accessible part of the Universe, and by no means promoting chaos. Moreover, in this case the growing entropy of the flow of all forms of energy used is of minor importance.

It is quite understandable that in the process of optimising interaction with nature, the advantages of the social system based on collective ownership of the means of production are of fundamental significance.

With all its complexity, the task of this optimisation is resolvable. The considerable allocations for that will be continuously increased, especially as all people of good will demand an end to the arms race. Contemporary scientific knowledge is called upon to provide a tremendous amount of all kinds of information needed for the solution of these tasks.

The deepening cognition of the natural processes in their interaction with technological progress embraces so diverse phenomena that they cannot be included in toto in any of the existing scientific disciplines taken separately. This circumstance makes a comprehensive analysis of technogenic effects on the environment an urgent necessity. We do not think this will require the creation of another special science dealing with the relationship between society and nature, or of yet another "sphere". What we think is needed is the elaboration of a synthetic inter-discipline viewpoint on the role played by environmental processes in man's further advancement.

By further cognising the processes taking place in the biosphere, man will be able to rationally combine the transformation of nature with the indispensable harmonisation of his relationship with it.

NOTES

¹ See A. Peccei, "The Predicament of Mankind", *Successo*, June, 1970; A. Peccei, "Where Are We? Where Are We Going?", *Successo*, February, 1971.

² See D. H. Meadows, D. L. Meadows, J. Randers, W. Behrens, *The Limits to Growth*, New York, Universe Books, 1972.

³ See B. Commoner, *The Closing Circle*, J. Cape, London, 1972.

⁴ J. Forrester, *World Dynamics*, Wright-Allen Press, Inc., Cambridge, Massachusetts, 1971.

⁵ Gus Hall, *Ecology: Can We Survive Under Capitalism?*, International Publishers, New York, 1972, p. 10.

⁶ To be more precise, as a result of the expenditure of energy received from fuel or atomic reactions.

⁷ K. Marx, *Capital*, Vol. III, Moscow, 1959, p. 800.

⁸ See A. Voyeikov, *Man's Influence on Nature*, Moscow, 1949, p. 87 (in Russian).

⁹ See *Izvestia*, No. 222, September 21, 1972; No. 8, January 9, 1973.

¹⁰ D. H. Meadows, D. L. Meadows, J. Randers, W. Behrens, *op. cit.*, p. 89.

¹¹ See V. I. Lenin, *Collected Works*, Moscow, Vol. 5, pp. 107-118.

¹² See E. Fyodorov, "The Menace That Must Be Averted", *Priroda* (Nature), No. 9, 1970; E. Fyodorov, "Urgent Problems of Society's Interaction with the Natural Environment", *Communist*, Moscow, No. 14, 1972.

¹³ F. Engels, *Dialectics of Nature*, Moscow, 1954, p. 262.

¹⁴ See I. Novik, "On Optimising Man's Impact on the Biosphere", *Methodological Problems of Biocybernetics*, Collected Articles, Moscow, 1969 (in Russian).

¹⁵ Avoiding it would require direct solar, hydro- and wind-energy, which seems to be lacking.

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Scientific and Technological Progress and Evolution of the Biosphere

More than 100 years ago, before Darwin's principal work came out, Marx and Engels wrote: "The definite relation to nature is determined by the form of society and vice versa. The identity of nature and man appears in such a way that the restricted relation of men to nature determines their restricted relation to one another, and their restricted relation to one another determines men's restricted relation to nature, just because nature is as yet hardly modified historically".¹

Today, as a result of society's economic activities, nature, the organic world in particular, has suffered vast changes. The forest area has decreased substantially, the relatively stable natural communities of organisms (biocenoses) give way to less stable, artificial communities, new breeds of animals and new varieties of plants are being developed, while once thriving species are wiped off the face of the Earth; industrial waste—radioactive deposits and carcinogenic hydrocarbons in particular—contaminate the air, seas and ocean, rivers and lakes, and the soil; the burning of large masses of mineral fuel reduces the oxygen in the biosphere, increases the concentration of carbon dioxide and heats the surface of the planet. This is fraught with many very undesirable consequences. The changes in the conditions of life lead to essential changes in the biology of man which are not always fully appreciated. In industrially developed countries, especially in large cities, men are developing larger bodies (so-called acceleration), sexual maturation has speeded up, the process of aging is slowing down and the average life span increasing. The character of morbidity is changing. Some diseases, the plague and tuberculosis, for instance, are gradually disappearing, while others—cardiovascular ailments and cancer—are becoming very widespread.

The world population is growing rapidly. Some of the qualitative indices arouse anxiety. Many authors note, among other things, a considerable increase in anomalies and deformities among the newborn. The time of "restricted relation of men to nature" about which Marx and Engels wrote at the beginning of last century has gone never to return. "Human society is exerting increasingly greater influence on its environment... In the biosphere this society is becoming a kind of agent whose power is in the course of time increasing at a continuously growing rate. It alone is changing the structure of the very foundations of the biosphere in a new manner and at an increasing rate,"² wrote Vladimir Vernadsky, the founder of biogeochemistry.

In other words, by their economic activities men determine the direction of evolution of the biosphere, which largely also determines the direction of their own biological evolution. The scientific and technological revolution we are now experiencing is also inevitably taking place throughout the biosphere.³

Rational control of the evolution of the biosphere is going to be one of the urgent scientific problems of our day, it is becoming increasingly evident that the future of mankind depends on the solution of this problem. The time has come when we must shoulder responsibility not only for the course of the scientific and technological revolution, but for the revolution in the biosphere which is caused by our scientific and technological progress. Control of the development of the biosphere is no fantasy, it is a stern necessity.

The essential feature of our time is that the main objects of evolutionists' study are no longer separate species, but evolution of the biosphere as a whole.

WHAT IS THE BIOSPHERE?

According to Vernadsky's definition, the biosphere is the outer envelope of the Earth occupied by living things. It includes all the living organisms of the planet and the inanimate things that constitute their habitat. For example, oxygen, a product of photosynthesis, belongs to the biosphere; so do mineral elements like nitrogen, phosphorus and sulphur. The biosphere also includes the nests and burrows of birds and animals, and products of organic origin like, for example, deposits of limestone and combustible minerals.

An observer from another planet might well include all our industry, transport and buildings in the biosphere. Having recorded the work of Lunokhods (Moon Rovers), he would enter in his diary: "The Earth biosphere has spread to the Moon". From the point of view of the Earth's inhabitants it also seems more correct not to oppose the human society to animate nature, especially the biosphere. Engels held that we do not rule over nature, but "on the contrary, with our flesh, blood and brain belong to nature and exist in its midst".⁴ He believed opposing man to nature was as ridiculous and unnatural as opposing body and soul or spirit and matter. Three inferences can be drawn from the foregoing:

1. Human society is part of the biosphere.
2. Human technology is not alien to the biosphere; it is a qualitatively new stage in its development.
3. Human society, as part of the biosphere, must in some measure obey its laws.

At the same time it cannot, of course, be considered that human society is identical with the biosphere; it is governed by special social laws which are not inherent in the rest of the biosphere. However, these laws act only until they come in conflict with the laws of the biosphere, in which case the biosphere may simply veto human activity or, as Engels said, begin to "take vengeance" on men for their unwise treatment of it. The higher laws of social development do not

and cannot nullify the laws which govern the lower stages, they are their superstructure. They are the top of the pyramid, which can only exist as part of the whole.

At one time giant reptiles were the indubitable acme of evolution but where are they now? The biosphere removed them from the list of creatures deserving its "attention". This is, of course, only an analogy. But this analogy is very significant; it implies that, if we fail to see our own place in the biosphere and oppose the laws of social development to the laws governing the evolution of the biosphere, we may run into some very complicated problems.

What is the structure of the biosphere and which of the laws governing it should we necessarily take into account, to regulate its evolution rationally? The biosphere has existed and developed on our planet for more than 2,000 million years. This has been possible only because the biosphere is a continuous succession of creation and destruction of organic substance—this is sometimes called the *biotic cycle*. Using the energy of solar light numerous species of green plants bind mineral elements and create primary organic substance; the two-million-strong army of species of animals, fungi and micro-organisms build their bodies with it by successively breaking this substance down to the basic mineral elements. In this way one cycle has followed another for thousands of millions of years and it follows that the biosphere exists as a biotic cycle. Each species of organisms is a link in the biotic cycle. Using the means of subsistence supplied by one species, it gives back to the environment that which can be used by others. The plurality of species of living beings and the multiformity of their vital functions ensure the stability of life. Micro-organisms play a particularly important role in the biotic cycle. By breaking down the dead remains of animals and plants, they transform them into a single "currency"—mineral salts, carbon dioxide, water and the simplest organic compounds used by green plants to build new organic substances again and again. As a result of the activity of micro-organisms every form of life inevitably joins the biotic cycle. That is why the biosphere is regulated naturally with their aid. Unicellular organisms form the very basis of the biotic cycle whose stability largely depends on whether or not they can cope with their duties. Multicellular organisms represent a peculiar superstructure on the firm foundation formed by the unicellular organisms. Owing to its ability to reproduce itself every living thing, by continually adapting itself to new conditions, goes beyond the closed circle. However, the activity of destroyers does not destroy the biotic cycle, it only extends it. So the cycle becomes a spiral. Moreover, the organisation of life is enhanced and its multiformity increases. Life masters the material sources of the external environment more and more completely. And this is what constitutes life's progress.

The connection between the evolution of individual species and that of the biosphere may be conceived as follows: for the species to change in any particular direction two conditions are necessary and sufficient, namely, *hereditary heterogeneity of the evolving group and irreversible changes in the external environment*. The first condition

makes the evolution of the species possible, the second determines its direction. A very essential, if not the main, source of irreversible changes in the environment is the vital activity of organisms. The change in the conditions of life thus proves to be an inevitable result of life itself. Variability and selection force the species to adapt themselves to the consequences of their own vital activity. In other words, the direction of the evolutionary changes in individual species depends on their position in the structure of the biotic cycle. The total vital activity of the species determines the features of the biosphere, which, in turn, determine the direction of the evolutionary changes in the individual species.

Over a period of many centuries man drew on the biosphere for his means of subsistence and gave back that which could be used by other living beings. The universal ability of micro-organisms to destroy organic substance ensured the inclusion of the results of man's economic activities in the biotic cycle.

But now the situation has changed. While man continues to take raw materials from nature, industry often returns substances which cannot be utilised by living organisms. *The biotic cycle is becoming unclosed.* The result is not only the destruction of many species of plants and animals, not only a disturbance in the composition of their natural complexes—biogeocenoses—but a destruction of the structure of the biosphere, of its cyclic organisation.

The history of development of the organic world bears evidence that the living beings on the planet have experienced such revolutionary changes before. For instance, the appearance of free oxygen, as a result of the emergence of photosynthesis, undoubtedly led to vast changes in the very basis of the biosphere. Some organisms became extinct, while others, with the aid of the variability and natural selection adapted themselves to the new conditions and even benefited from them. But, to benefit from the difficult situation that is developing before our eyes, selection and variability no longer suffice; this situation requires conscious, rational intervention. The possibility of such intervention was pointed out by Marx. Concerning the exchange of substances between the citizens of a free socialist state and nature he wrote that they would be "rationally regulating their interchange with nature, bringing it under their common control, instead of being ruled by it as by the blind forces of nature, and achieving this with the least expenditure of energy and under conditions most favourable to, and worthy of, their human nature".⁵ And this means control of the evolution of the biosphere, its regulation from within. It clearly follows from Marx's and Engels's comments that such control lies along the main line of social, scientific and technological progress.

Two principal tendencies come to light in the course of the evolution of life on Earth: a) an increased influence of animate on inanimate nature through the appearance of new forms and elaboration of new adaptations and b) inclusion of every new gain of life in the biotic cycle by the destroyer organisms. It is the interaction of

these tendencies that has ensured the progressive development of life on our planet for thousands of millions of years.

For the purpose of progressive development of human society unlimited in time, we apparently need take these tendencies into consideration in our relations with animate nature. *A creative quest for new rational planning of innovations and continual repair of the damage wrought in the biosphere by human activity* are required. While improving the technology of production, man must, in particular, see to it that no poisonous substances which cannot be utilised by organisms should find their way into the biosphere and we must learn to destroy our harmful production wastes when they do find their way into the biosphere; in doing so man must increase the detoxicating ability of the organic world by creating complexes of detoxicating organisms and must constantly strive to raise the productivity of the planet's green vegetation, the main reliable source of valuable organic substances and of oxygen. Man must not oppose production to animate nature, but must utilise the latter to his benefit, because its regulatory potential is very great and should not be ignored.

In other words, each new gain of the mind along the way of scientific and technological progress should be included, following Marx's instructions, in the substance and energy interchange between man and nature. New gains must not destroy the biosphere (especially the human organism), they should contribute to its development. Consequently, *every human gain must also be a gain to the biosphere.*

Man is remaking nature and will be remaking it still more intensively. But he must do this rationally. He must take its main principles of organisation and tendencies of development into account.

Various points of view are expressed in the literature which deals with the problems of controlling the negative aspects of the scientific and technological revolution. They are, in particular, described in M. Rutkevich and S. Shvarts's article.⁶ The extreme points of view examined by them are the result of a metaphysical opposition of man to the biosphere, the consequence of underestimating the potentialities of men who have chosen the communist path. An organic combination of the achievements of the scientific and technological revolution with the advantages of the socialist system of economy, said L. I. Brezhnev at the 24th CPSU Congress, guarantees the possibility of rational forms of interchange between nature and society. Studies of the law-governed evolution of the biosphere are the most important prerequisite for success.

FROM BIOGENESIS TO NO-OGENESIS

The evolution of the organic world has gone through several stages. The first stage was the emergence of the biotic cycle—the biosphere; the second stage was the complication of the cyclic structure of life, with the appearance of the superstructure of multicellular organisms. These two stages proceeded under the influence of purely biological factors and may be called the *period of biogenesis*. The third stage was the emergence of human society. The

activities of men within the scope of the biosphere, although rational in their intentions, are far from always being rational in practice; they are often destructive and limit the possibilities of further development. However (and this is particularly clearly manifest in our country), the rational, planning principle is already prevailing over the spontaneous, and the biosphere is gradually being transformed into the sphere of the mind, the no-osphere.

The concept of "no-osphere" was initially introduced into science by Edouard Le Roy, a French Bergsonian philosopher.⁷ He used the term no-osphere to designate the part of the Earth comprising human society with its industry, language and other forms of rational activity. The no-osphere must supersede the biosphere. This concept was further developed in Pierre Teilhard de Chardin's book "The Phenomenon of Man".

Although Le Roy and Teilhard de Chardin's idea about conscious human activity as a factor transforming the biosphere was right, they interpreted it idealistically. According to Teilhard de Chardin, the no-osphere is a "thinking layer" which, having originated at the end of the tertiary period, "has since then spread over the animal and vegetable kingdoms, outside and above the biosphere".⁸ It is a spontaneous process of crystallisation of some inner essence of particles of matter, which manifests itself during their cohesion. In dealing with the development of life on the Earth and the role of the human mind in this process, both scientists missed the most important thing: the complex and conflicting relations between nature and the human society with its inherent social conflicts and special laws of social development, in the light of which men's relations to nature manifest themselves. The transformation of the biosphere into the sphere of the mind, the no-osphere, cannot be a spontaneous process, a crystallisation of some primordial sources of the world mind. The no-osphere must be fought for consciously.

Unlike Le Roy and Teilhard de Chardin, Vernadsky develops a materialist concept of the no-osphere. In our opinion Y. Trusov is quite right when he says in his article that "Vernadsky has elaborated a truly scientific, materialist concept of the no-osphere which he has filled with real natural history content. That is why precisely Vernadsky should be rightfully considered the founder of the teaching on the no-osphere",⁹ especially since this teaching originated under the direct influence of the biogeochemical ideas of the Russian scientist. Unlike the French scientists, Vernadsky implied by the no-osphere not something outside the biosphere, but a *new stage* in its development, a stage of rational regulation of the relations between man and nature,¹⁰ i.e., precisely what Marx implied.

A revolutionary transition from the evolution governed by spontaneous biological factors (the period of *biogenesis* to an evolution governed by the human mind, the period of *no-ogenesis*, is taking place before our very eyes. At this stage biosphere will change into no-osphere, and the organic evolution will proceed along the path of no-ogenesis. The necessary prerequisite for the transition to this stage is a communist reorganisation of society.

The impending conflict between man and nature may be settled not by returning to the half-savage state, not by replacing the biosphere by a kind of technosphere, but as a result of no-ogenesis, i.e., *conscious regulation of the biosphere by an improved technology.*

NO-OGENICS

In direct connection with the revolutionary social reorganisation, with socialist relations, superseding capitalist relations, a real possibility of organising a new type of research institutions uniting representatives of pure natural science disciplines with engineering, technical, agronomic, medical and sociological workers has arisen. Their main objective is to evaluate the achievements of science and technology not only from the point of view of their immediate usefulness, but also as factors which to some extent influence the relations between human society and nature. In working on this objective these scientific institutions select and recommend scientific developments, discoveries and inventions to be introduced into the national economy and medicine, then watch the results and organise research aimed at removing harmful side effects as soon as any are found. They must take a rational approach that only allows innovations to be developed which do not undermine the foundations of the biosphere, the cycle of organic substance, the criterion for the value of innovations being not only their immediate benefits, but also their compatibility with the progress of life. The tactics of human activity must take into consideration the strategy of the biosphere, the "wisdom of life" accumulated over the thousands of millions of years of its existence.

Such institutions might be named institutes, laboratories or bureaus of no-ogenesis, and the science of regulating the relations between human society and nature—*no-ogenics*. The principal aim of no-ogenics is to plan the present for a better future. Its main task is to restore equilibrium in the relations between man and nature, as well as in man himself, upset by technological progress.

Several terms for the scientific trends dealing with the problem of relations between man and nature are suggested: nature protection, geo-hygiene, prognostics (futurology). But the tasks of no-ogenics are broader and more concrete than those of the said scientific trends.

Regrettably, the concept of "nature protection" does not always mean the same thing to everybody. Since opposition of human society to nature is widespread, it is sometimes thought that mankind can, in principle, develop independently of nature, without either affecting or changing it in any way. This is a total delusion. Human society cannot exist without remaking nature and the living envelope of the Earth. The term "nature protection" means protection of nature from man and at the same time for man; in other words, it means not protection of nature as such, but conscious, rational regulation of the continuously changing relations between human society and nature, i.e., no-ogenesis, which is the subject of no-ogenics. Geo-hygiene and prognostics (futurology) are constituent parts of no-ogenics.

Restoration of the equilibrium in the relations between man and

nature is the principal, but not the only task of no-ogenics. In addition to its protective functions it must solve the problem of increasing the variety of forms of life by creating new species of plants, animals and micro-organisms in the no-osphere. These new species will serve not only as a source of food, oxygen and raw material for industry, but will also give man a more active mastery over inanimate nature and will contribute to the success of prolonged cosmic flights. The work being done in this direction will make it possible to gain a deeper insight into the secrets of life and will in the end result in the development of fundamentally new mechanisms which will effectively process the energy, substance and information coming from inorganic nature. With such mechanisms man will gain a better understanding of life's structure, while the living envelope of the Earth will, in its turn, acquire an ability of peculiarly "understanding" the aims and strivings of man.

No-ogenics, as a science of rational regulation of the relations between man and nature, is only just being created, and human practice in this field is as yet spontaneous. However, where practice is not determined only by private-ownership interests, only by pursuit of profit, it is already consciously moving in the direction of no-ogenesis. This can be easily shown at least by a few examples.

Many important national economic problems can be solved by a variety of methods. All of these methods may equally produce an immediate effect. For instance, to produce a larger crop we can either expand the areas under crops at the expense of forests, or increase the yield of the already cultivated lands. Formerly men used mainly the first method, and that was historically justified. The science and practice of today demand that we cease our offensive against the forest because it leads to destruction of the biosphere. This suggests an essentially no-ogenic task, namely, that of increasing the productivity of the land already under cultivation. According to the most modest estimates, it is possible to increase yields 3-4-fold in this way—the application of up-to-date agrotechnics and genetic selection play an important part. Academician N. Vavilov rightly called selection the controlled evolution of cultured organisms.

The shortage of areas under agricultural crops and pastures impels researchers to seek other ways and means of obtaining foodstuffs and fodder. Methods are being elaborated for utilising unproductive, inconvenient or eroded soils, and more complete and rational utilisation of the resources of the seas and oceans is being suggested.

The biotic cycle is based on the vital activities of unicellular organisms. Successful control of animate nature is impossible without due regard for this factor. Thus development of the microbiological industry using various micro-organisms (bacteria, actinomycetes, yeasts, algae, protozoans, etc.) as producers of protein and other products consumed by man and livestock and used in medicinal preparations, etc., acquires particular significance. The artificial synthesis of foodstuffs from mineral elements is on the agenda.

To safeguard crops, it is necessary to fight pests. Various DDT- and hexachloran-type chlororganic compounds are very effective

against pests. They have played incontestably positive role. But it has now become clear that an unrestricted use of such substance does not hold out any prospects in the future, it is actually harmful. New, less dangerous and more effective methods of protecting forests and agricultural crops have of late been developed—the introduction of immune varieties; stimulating the development and multiplication of beasts and birds of prey who devour the pests; cultivation of plants which repel pests; breeding of strains of micro-organisms which affect harmful arthropods; attracting or repulsing pests by preparations (attractants and repellents), ultrasound and other physical methods; destroying the genetic structure of pests. All this requires knowledge of their ways of life, and their behaviour patterns, etc. In other words, the leading role in the complex matter of protecting crops from harmful organisms must be played in the future not by chemists or biologists but by no-ogenists. Only no-ogenic methods of control will enable man to change the natural complexes of organisms, in the desired direction instead of destroying them, thus making the biocenoses more diverse, with human practice organically included. Working out effective methods of regulating particular biotic cycles is already on the agenda. It is an important part of no-ogenics.

The necessity of protecting forests, parks, meadows and arable land makes one think about the problem of their utilisation for urban building.

The tendency toward ever greater urbanisation gives rise to a number of other complex problems (the problem of pure water, in particular) which can only be solved by a complex no-ogenic approach.

The change of industry into a technology of production that does not contaminate the biosphere (chimneyless and sewerless factories) is also very important. According to Academician I. Petryanov-Sokolov, "in the vast majority of cases this is perfectly feasible and advantageous".¹¹ It can only be added that from the standpoint of no-ogenics it is also the only way to follow.

Until chimneyless and sewerless production has taken over completely, the sewage from plants and factories, must, before it finds its way into nature, be subjected to biological purification by micro-organisms which destroy poisonous organic compounds. And this is already possible because certain micro-organisms (bacteria, fungi and actinomycetes) have been found which are capable of utilising stable organic substances and even antiseptics in their vital activities. This capacity of the lower organisms can apparently be increased by genetics and selection. Scientific research is also under way in this direction. A method of removing excess heat from the surface of the planet must also be devised.

A tendency toward a change from one-sided, at times barbaric, methods of attacking nature to more no-ogenic methods is apparent in other spheres of human activity too. The prohibition of thermonuclear tests in three media, the agreement prohibiting the spread of nuclear weapons, etc., are a victory of the human mind.

By utilising developments in other sciences, the no-ogenic ap-

proach will make it possible to eliminate the danger of destruction of man's hereditary structures, the basis of his biological essence. In a society free from class contradictions, nutritious food, pure water, fresh air and other gifts of nature accessible to all men will not only ensure normal conditions of life, but will also bring about an upsurge of creative activity and further development of science and art, and will stimulate high moral qualities. In other words, no-ogenesis in a classless society signifies a flourishing not only of nature and society, but also of each individual person. Moreover, the material, moral and aesthetic principles underlying the control of the biosphere inevitably become principles for preserving and improving the higher material and spiritual values of human culture.

NOTES

- ¹ K. Marx and F. Engels, *The German Ideology*, Moscow, 1968, p. 42.
- ² V. Vernadsky, *Outlines of Biogeochemistry*, Moscow, 1940, p. 47 (in Russian).
- ³ The idea of man as the leading factor of evolution was suggested in the USSR in the 1930s by V. Vernadsky and the noted biologist B. Tokin. In the West it was developed by J. Huxley, E. Le Roy and P. Teilhard de Chardin. It has of late attracted the attention of an increasing number of scientists.
- ⁴ F. Engels, *Dialectics of Nature*, Moscow, 1954, p. 242.
- ⁵ K. Marx, *Capital*, Vol. III, Moscow, 1959, p. 800.
- ⁶ See *Social Sciences*, 1972, No. 2(8).
- ⁷ E. Le Roy, *L'exigence idealiste et le fait de l'évolution*, Paris, 1927.
- ⁸ P. Teilhard de Chardin, *The Phenomenon of Man*, Moscow, 1965, p. 181.
- ⁹ Y. Trusov, "Concept of the No-osphere", *Nature and Society*, Moscow, 1968, p. 34 (in Russian).
- ¹⁰ See V. Vernadsky, "A Few Words on the No-osphere", *Achievements of Modern Biology*, 1944, Vol. 18, Book 2, pp. 113—120 (in Russian).
- ¹¹ *Pravda*, June 3, 1968.

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"Technicalised" Environment and Human Health

Under the conditions of the scientific and technological revolution, which influences all spheres of modern life—from man's practical activities to his spiritual life, the social hygiene aspects of the changes in man's environment become particularly important. The increasingly faster rates of these changes may lead to an ecological unbalance between man and his environment with a resultant decrease in the adaptational and compensatory potentialities of the human organism and a corresponding increase in morbidity.

The ability of modern society to influence the environment is so great that the results of the influence and above all the errors and unforeseen consequences may adversely affect the health of man.

It would be methodologically one-sided to regard the "Earth and its atmosphere" only as an open system. In addition to this aspect the system under consideration is in some respects also closed (if we abstract ourselves from the fact that it receives solar energy and loses about the same amount of thermal energy). The fact that it is closed increases the chances for a disturbance in the ecological balance with all the ensuing consequences to human health.

Most generally diseases are rooted in the contradiction between the biological and social aspects of life. Cognition of the biological substrate of man in its organic unity with his social being, as well as remaking of the social environment with due regard for the biological characteristics and requirements of the organism are the principal way of protecting human health.

The "return of man to nature" is often suggested in the West as a condition for protecting man's health. Whereas in the 18th century such suggestion was an expression and manifestation of the romantic revolt against the developing bourgeois system, today it is an inadequate reaction to the growing urbanisation which is assuming an overall character. What is needed is not a mere return of man to nature (in this form the return to nature would be something reactionary, i. e., a renunciation of the modern achievements of civilisation), but a new attitude to nature and its remaking in conformity with the somatic and neurophysiologic potentialities of the human organism.

In the epoch of progressing industrialisation and technicalisation of medicine changes also occur in the activities of the medical workers. The physician must resort to increasingly more intermediate methods of examining the patient. The former "physician-patient" principle of interaction is superseded by the "physician-instrument-patient" principle.

The industrialisation of medicine and its provision with technical equipment proceed at an unprecedentedly fast rate. The medical instruments used in the past played only an auxiliary role, whereas today they are becoming one of the most important means of cognition. The role of instruments in medicine became enhanced the moment physicians changed from a mere visual observation of pathologic processes to studying their deep-rooted, internal structural and functional connections and relations.

When studying phenomena on a biomolecular or submolecular level the researcher deals not so much with the very phenomena or processes magnified by the instruments as with the readings of these instruments shown as various curves, waves, etc. But such intermediate, transformed picture enables the researcher to "project" the knowledge to the real processes and phenomena and draw conclusions corresponding to the pathologic picture under consideration.

The loss of former visualisation and the cognition of increasingly more complex objects enhance the role of abstract logical thinking in learning medico-biological phenomena. However, this progressive tendency in the development of modern medicine also has some seamy, undesirable consequences, i. e., instruments do not provide an idea of the patient's personality with his complex social, mental and moral world of experiences and aspirations. The individualised relations between the physician and the patient may be subjected to a certain machine standardisation and depersonalisation, whereas the principle of individualisation in treatment presupposes not only knowledge of the concrete patient, but also knowledge of the concrete phase in the development of the particular disease and the form of the patient's psychoemotional reaction. In modern medicine this requires complex approaches based on the dialectical materialist methodology.

The increasingly greater use of exact, quantitative methods in studying normal and pathologic processes is one of the features in the development of modern medicine. Today a new stage is setting in utilisation of physico-mathematical and quantitative methods. In the past, quantitative mathematical methods were most commonly used in technical, utilitarian calculations, whereas today they are employed in research.

But the use of quantification, i. e., quantitative "measurement" of particular qualitative signs (symptoms, syndromes, etc.) in studying the organism as a self-regulating system encounters a number of methodological difficulties.

It is well known that the mathematical apparatus has formed as a result of generalising spatial and quantitative properties and relations of objects and processes of inanimate nature, whereas a living organism as a self-regulating system consists of a mass of subsystems comprising numerous variables which function in a probability manner. For purposes of learning the specificity of pathologic objects the mathematical apparatus must therefore be modified and adapted to a more adequate reflection of the characteristics of their development.

In clinical medicine an enormous role is played by various shades of pathologic processes, the clinician establishing a con-

nection with the patient's personality in order to gain an insight into them. That is why mathematical and cybernetic methods, as valuable as they may be, can play only an auxiliary role in the fruitful work of a clinician. A physician must often speak of the qualitative aspect of diseases in the language of qualities. For a certain period of time the patient and the physician form an indissoluble psychological unity. The extent to which this unity is achieved often determines the success of the treatment.

Despite its technical equipment medicine must always be a personalistic science. In addition to "technical categories" it is always necessary to consider the "sociological coefficient". This is the best "inoculation" against making a fetish of technicism. In medicine technical equipment and personality-clinical examination must develop not on a competitive, but a friendly basis. They must at least never give up their "competitive cooperation".

The inclusion of medicine in the general stream of scientific and technological progress has also engendered a number of ethical problems, for example, the socio-moral aspects emerging in cases of transplantation of organs and tissues, problems of medical genetics and psychopharmacology, clinical experiment, etc.

The increasing differentiation and narrow specialisation in medicine give rise to contradictions between the accumulated facts and the extent of their generalisation. Today there are close to 300 relatively independent branches in medicine. This process, while progressive as a whole, may under certain conditions lead to undesirable consequences.

All this necessitates an improvement of the principles of coordination, planning and prognostication in the development of medical science and the training of physicians.

As the aforesaid ascertaining stage of development is passed and a transition is made to explanatory and generalising positions, especial significance in medical science is acquired by elaboration of problems of the science of science, particularly, methodology, psychology and sociology of scientific quest and scientific thinking. The methods of scientific quest must be more purposeful, with due regard for the functioning of the inner laws of the science itself studied with the aid of sociology and psychology of scientific work.

As is well known, one of the most important manifestations of the deepening scientific and technological revolution is that science itself is becoming a direct productive force. If we analyse this process from the point of view of so generalised a criterion as the rise in labour productivity, we may rightfully also regard medicine as a science which in a certain measure performs a function of a productive force of society. Medicine and health protection, which in socialist society serve to strengthen working people's health, a most important subjective factor of production, promote a rise in labour productivity. By performing their humanitarian, social-hygiene, professional functions medical workers foster reproduction of healthy labour power and an increase in the active, able-bodied period of life.

Whereas physics and chemistry, by becoming a direct productive force, influence mainly the material aspect of the productive forces (creation of new substances, energies and technological processes), medicine, like some other sciences which study man, influences primarily the subjective factor of production.

Although the activities of medical workers do not directly create material products, they nevertheless create the necessary prerequisites for increasing the products of social labour and the national income. The activities of medical people aimed at preserving, maintaining and strengthening the people's health as one of the most important elements of the productive forces must be regarded as a factor of society's economic and social progress.

Under modern conditions in the hierarchic system of correlation of social values health is becoming increasingly more important. It is one of the indices of the people's welfare. Experts of the World Health Organisation regard health as one of the twelve most important components of the people's welfare. The value orientation towards health is acquiring increasingly greater importance under conditions where science is becoming a direct productive force.

The modern scientific and technological revolution is qualitatively changing its demands with respect to the use of human energy. The accelerated rates at which the machinery and technological processes of production are becoming more complicated, the development of automation, and the "minor" and "major" mechanisation of production are accompanied by a relative decrease in the use of man's manual, muscular work and by increasingly greater use of mental work and neuropsychic energy in the process of production. As a matter of fact, the fatigue of a person working on a modern conveyer is due not so much to muscular, physical strain, as to neuropsychic strain, the intensity and character of the various stimuli acting on the person, and to the speed of his neuropsychic reactions.

The modern stage of social development is characterised by an acceleration of the socio-economic, production-technological, cultural, scientific, psychological, and other rhythms of life. For one thing, the working speeds of machines, machine tools, apparatus, etc., have sharply increased. As a result of the increased technological speeds new and more complicated demands are made of man and his "working mechanisms", especially the sensory system, the sense organs. The speeds of the psychophysiological and somatic reactions of the organism often prove inadequate, relatively slow compared with the high speeds of the machinery and apparatus. The increased demands made on the worker and his feeling of personal responsibility in the changed labour processes intensify the psychoemotional strain.

Man's health and labour productivity depend on the degree of his adaptation to the environment (in the broad sense of the word, comprising the "artificial" and including the production environment). As long as the rhythms of the psychophysiological and technological processes more or less corresponded, a spontaneous biological adjustment of the organism to the changes in the technological production processes sufficed. Now that there is a certain disharmony, that the

former often lag behind the latter, elaboration of special measures is necessary to eliminate the undesirable consequences of this arrhythmia. Psychology, physiology and ergonomics are now facing the problem of elaborating such measures as would ensure the necessary correlation between the psychophysiological and technological rhythms and would not harmfully affect the health of the worker.

Correlation of the aims and objectives of production, planning and construction and the requirements of labour and health protection is one of the most important social-hygiene principles of development of socialist production.

Technological progress imposes on medicine increasingly new tasks. In view of this, medicine must proceed from the laws and peculiarities of the development of society and production and must take into account the specific features of the different technological processes. It is well known that mechanisation and automation are attended with a certain rhythm, i. e., a periodic, often preset repetition of movements and labour operations. This rhythm must correspond to the physiologic rhythm of the human organism. Modern physiology of labour proceeds from the fact that rhythm helps in elaborating and consolidating a working pattern and creates favourable conditions for the most effective coordination of blood circulation and respiration with man's labour efforts.

Scientific and technological progress creates a new material, technical, chemical, radiation and psycho-emotional environment. The biosphere in which our ancestors lived is changing for modern man into a technosphere.

For a long time people took from nature all their technical facilities enabled them to take and gave little thought to the hygienic consequences.

It is common knowledge that the changes in the environment (not controlled and scientifically unforeseeable) brought about by human activities are often unfavourable. Pointing out this circumstance Soviet specialists note that, compared with the variety of the possible changes in any characteristics of the environment, the limits within which life is possible in general and that of man in particular are very narrow'. The "zone of comfort" in the scale of hygienic characteristics of any conditions of the external environment is very narrow, while the limits of the possible variations of each of these conditions are enormous. The problem today is to form a new science of hygiene—geohygiene, which will study the various changes in the hygienic characteristics of the environment that are of a global, world-wide character.

From the technical point of view man's possibilities for remaking nature are practically unlimited. But in addition to the practical (utilitarian, consumer) expediency in remaking nature it is necessary to proceed from the social-hygiene expediency. In remaking nature man does not escape the effects of its laws. Engels wrote: "Let us not, however, flatter ourselves overmuch on account of our human conquests over nature. For each such conquest takes its revenge on us. Each of them, it is true, has in the first place the consequences on

which we counted, but in the second and third places it has quite different, unforeseen effects which only too often cancel out the first".²

In other words, the rapid scientific and technical, as well as intensive remaking of nature must be based on a harmonious combination of the immediate aims pursued by man and the possible remote results. To man nature is not only of economic, but also of great hygienic, sanitating, educational and aesthetic significance.

Successful utilisation of the results of the scientific and technological revolution by socialist society demands that the social and social-hygiene forecasts, far from lagging behind the economic, technical and production forecasts, should even outstrip them, illuminating the way and determining the strategic direction of technological progress. In our days prognostication of the changes in the surroundings and of their social consequences, as well as control of these processes in the interests of human health acquire particular significance.

Prognostication must help to foresee the positive, as well as the negative effects produced on human health by the remaking of nature. The problem is not only to record the appearance of factors unfavourable to human health in the surroundings, but also to foresee their appearance in due time and be able to take necessary and timely measures to neutralise them.

If, in remaking nature, we fail to take into account the remote consequences, including the sanitary-hygienic, the future generations will have to pay an enormous price for our short-sightedness, not only in the form of vast expenditures on various "alterations" and "improvements" but also in terms of their health. Maintenance of the surroundings in a state most favourable to human health is one of the most important areas of research and economic activity.

In remaking his surroundings and creating new social-economic conditions man does not always or at once realise and elicit the place and role of a number of pathogenic factors. As a result of new socio-economic conditions these factors may contribute to the emergence and spread of a number of mainly social diseases (neuroses, psychoses, cardiovascular diseases, etc.). "Modern pathology is in some measure a result of domestication (anginas, seasonal catarrhs), urbanisation, motorisation of work and life, rapid transport, etc.; a result of man's settling in zones with natural foci of diseases and unusual climatic conditions (polar, aerial, subsurface spaces); a result of wide use of not indifferent minerals, natural and synthetic poisons, including drugs, the latter often being misused in everyday life (in large measure due to wide and importunate advertising); a result of the masses of working people in capitalist society lacking sanitary-hygienic knowledge and effective prophylactic measures".³

Man influences nature to such an extent that the natural regulatory, buffer mechanisms are by themselves no longer able to neutralise many harmful results of this influence.

In a number of cities in capitalist countries the pollution of the atmosphere has already reached such a concentration that specialists

must admit a deficiency of oxygen for respiration. All this leads to increased morbidity, including primarily such diseases as lung cancer, emphysema, bronchitis, asthma, etc.

Imperialism creates antihygienic living conditions for the working people not only in its own countries, but also in the developing countries and those fighting for their liberation. For example, US aggression against Vietnam, Laos and Cambodia produced severe genocidal, biocidal and ecocidal results. The barbarous American bombings have resulted in the formation of close on 10 million craters on South Vietnamese territory alone; filled with dirty, stagnant water these craters have become a favourable source for multiplication of many species of mosquitos, including malarial.

As was already stated, the ability of the human organism to adapt itself to deteriorating conditions of its surroundings is limited. It should be remembered that normal human life in the changing environment proceeds not through fundamental changes in the structural and functional foundations of the organism, but as a result of adjustment of the environment to its requirements. Thus the strategic principle of remaking the surroundings consists in adjusting them to the optimum hygienic requirements of the organism.

Man does not have adaptational reactions to certain new factors in his surroundings. For example, according to some data, the number of urban people with impaired hearing is continuously increasing. This may be due to the fact that, in addition to production noises, people are also affected by the general urban noises. It is also well known that the incidence of lung cancer is higher in towns than in rural areas.

The character of modern human pathology cannot be understood if viewed apart from the changes taking place in society. Let us take, for example, urbanisation which is becoming a universal phenomenon. One of its consequences is an increase in urban population not so much because of its natural growth as because of migration of people from rural areas. As regards health, urbanisation is quite a contradictory phenomenon. On the one hand, it contributes to a certain rise in the living standards, whereas, on the other hand, it engenders new diseases or fosters an increase in the incidence of diseases which formerly were not so widespread, namely, cardiovascular and mental diseases, cancer and traumatism.

Numerous studies carried out in recent years reveal a certain connection between the mode of the people's living in particular communities and the peculiarities of the diseases. For example, some chronic nonspecific diseases reflect the influence of the "urban factor" on the disease incidence. Thus the increase in chronic pulmonary diseases in towns is increasingly more often connected with such factors as the rising density of the urban population, pollution of the atmospheric air, etc.

With the transition from one stage of social development to another the psychoemotional interrelations of the people become increasingly more complicated. All the channels of their emotional relations are now filled to the brim and sometimes are even overloaded. The human nervous system is subjected to continuous and

increasing "bombardment" by various psychoemotional factors, both healthful and tonic, and undesirable, adverse and even pathogenic. The periods of moral "wear and tear" of machinery and even of some occupations are growing shorter, while the development in the field of technology, culture, etc., is quickened. All this makes new and increased demands of man's "internal resources". Man's mental health and his emotional balance are important components of these resources. That is why psychosomatic problem is now acquiring particular significance.

In the age of rapid scientific and technological progress, tremendous social-economic changes, mastery of space, etc., the role of the mental factor has tremendously increased in all spheres of life. Formerly the source of psychoemotional traumas was for the most part in the sphere of everyday life and personal interrelations of the people, whereas today the situation has considerably changed. The epoch of the scientific and technological revolution involves an intellectualisation of labour, i. e., it takes on increasingly more elements of mental work, man's responsibility for his work increases, and greater demands are made of all his organs and systems of organs.

The psychosomatic problem is acquiring particular significance in our days not only as a result of the influence exerted by the scientific and technological revolution, but also in connection with the vast social changes. The process of urbanisation, the accumulation of large masses of people in towns, their inclusion in social production, the development of the means of mass communication, and the enormous stream of information which passes through man's consciousness every day increasingly more "psychologise" man's life. Modern production also contributes to this process by demanding of the working people a continuously higher general education and special training.

In our time the process of "psychologisation" of man's life alters the character of the psychosomatic problem. It goes without saying that the person who has more to do with "mental" factors in his life is exposed to their adverse influence to a greater extent. The intensification of the people's emotional life means an increase in the mental strain which in a number of cases leads to a neuropsychic overstrain.

Humanisation of the people's interrelations in micro- and macro-collectives in socialist society, creation of an appropriate psychological climate is, in addition to the economic results (a rise in labour productivity, reduced personnel turnover, etc.), also significant from the point of view of social hygiene because it fosters the maintenance and strengthening of the mental health of the members of that society.

In bourgeois literature there is a widespread conception that the intensification of human life under conditions of the scientific and technological revolution serves, with allegedly fatal inevitability, to make people neurotic, and that the attempts to adapt man to the forced rhythm of life engender various types of neurotics and psychosthenics on a mass scale.

As a matter of fact, according to a survey carried out by American physicians, close on 60% of the adult population of the USA suffer from some mental aberration caused by the American way of life. One of the dominant mental characteristics of the working people in capitalist society is the continuously increasing sense of fear for, and uncertainty in, the future.

It stands to reason that the intensification of all aspects of human life under conditions of exploitation, chronic uncertainty not only in the remote, but also in the nearest, future, war hysteria, etc., foster a systematic increase in the incidence of neuropsychic diseases. But it would be wrong to apply this peculiarity of the exploiter society to any society developing under conditions of the scientific and technological progress, as is being done by advocates of the theory of "a single industrial society" and its medical variety—the theory of "diseases of civilisation".

Protection of the mental and moral health of children is becoming particularly important because the information channels of the children's and adolescents' connection with society (school, cinema, radio, television, etc.) are often extremely overloaded. Under conditions of capitalist society these channels often transmit information that makes children and adolescents neurotic, destroys their mental health and shatters their moral principles.

Representatives of the so-called medical futurology hold that within the few nearest decades medicine will make a number of discoveries and considerable achievements in controlling infections, cancer and other diseases and that the potentialities of genetic control, predetermination and regulation of the children's sex, creation and implantation of artificial organs, pharmacological influence on the memory, productivity of manual and mental labour, athletic performance, etc., will increase. They also believe that within the next 70-80 years it will be possible to prolong life by about 50 years, i. e., bring the real life span closer to that which is biologically possible. If these forecasts are realised, it will further enhance the role of medicine and public health in the life of man and society as a whole.

The progress of society, science and technology extends the social and moral responsibility of physicians to the people and society well beyond the limits of traditionally conceived medical humanism.

The remaking of nature, introduction of new substances and sources of energy into practice, demographic changes, achievements of genetics, psychopharmacology, etc., engender problems which already today cannot be solved skilfully and from the point of view of humane and civic social-hygiene positions without the participation of medical people.

Nor can the problems of genetics of modern man be considered apart from the present social, scientific and technical changes. Thus, the development of transport and means of communication, increase in migration and the rise in cultural standards, destruction of the traditional religious principles, the overcoming of national barriers, etc., lead to a considerable increase in marriages between representatives of different races, nationalities and climatic zones. All this rapidly

undermines and destroys not only the ethnic, but in a certain measure also the former genetic dissociation and isolation of the people. The genetic "losses" connected with the disappearance or sharply diminished natural selection in human society are being compensated by destruction of the genetic isolation.

The scientific and technical achievements increase the chances of exerting controlled medical influence on the development of man with the aim of prolonging human life. But the postponement of the period of old age must be accompanied by a prolongation of the creative, reproductive period of man's activity. Measures are necessary to reduce to the minimum the contradictions between the acceleration of the process of the people's "aging" in the developed countries and the decrease in the able-bodied part of the population. The "aging" of the people in these countries may reach an even higher level if means are found to treat or sharply reduce the diseases and lethality from a number of "autumnal diseases", i. e., cardiovascular diseases and cancer.

The scientific and technological progress has put on the agenda a number of ethical problems. Not only the role of scientists in the life of society is increasing today, but also their responsibility for the social consequences of the discoveries they make or the experiments they perform.

It is well known how acute the ethical problems have become in connection with the development of medical genetics, transplantation of organs and tissues and the other recent achievements of science. The prospects for the development of neuropharmacology, immunology and medical genetics ever more imperatively demand moral substantiation of the possible impending results and discoveries of science. Such achievements as the influence on the mechanisms of cerebral activity by means of neuropharmacological and physicotchnical agents, experiments in "vegetative reproduction" of living beings and development of the embryo *in vitro*, and the achievements of human genetics have raised before scientists a most important problem of correlation between the prospects for the development of science and the traditional requirements of morality, although this problem has not emerged today. It is a constant concomitant of science. The progress of society, science and technology will always create collisions between the scientific potentialities and the moral principles. These collisions will always require new approaches and cautious solutions. And the successful solution of the new, impending and no less complex problems will depend precisely on how adroitly and untraditionally we can solve the problems of today. Science enables man to "correct" some of nature's errors. The range of these possibilities is steadily increasing. And we must be ready to take advantage of them without going to the extremes of totally denying the new or of hastily carrying into practice the scientific achievements not yet sufficiently approved by life. This is particularly important to medicine since it deals with man, his life and health.

Under the conditions of the modern scientific and technological revolution the relations between the physician and the patient also

undergo a change. As was already stated, the information on the condition of the patient is becoming more and more indirect. The increase in laboratory-diagnostic information and the necessity of analysing it result in decreased direct physician-patient contacts. The growing differentiation and specialisation in medicine create a situation where the patient appears not before one physician, as was the case before, but before a number of physicians, each often considering him from the point of view of his narrow speciality. The moral responsibility for the patient is also "divided" among numerous physicians. Such conditions give rise to the problem of finding adequate forms of synthesis in studying the patient and increasing the responsibility of each "narrow" specialist for his condition.

By falsifying the conclusions on the influence of the scientific and technological progress on the people's health bourgeois ideologists are trying to explain many problems of public health from their point of view. Various "adaptation theories" are of late becoming increasingly more widespread in the West. According to these theories, man may reach the optimum of health not by a revolutionary change in the socio-economic conditions of capitalism, but by adapting the neurophysiologic and other characteristics of his organism to the ever more rapidly changing environment.

Proceeding from the real contradiction between the psychophysiological (biologic) and technological (social) rhythms, the disharmony of the rhythms of man's life and the rhythms arising in the external "artificial" environment, some bourgeois scientists have advanced a theory explaining the causes of emergence and extensive spread of a number of diseases today. According to the authors and advocates of the theory of social disintegration, "civilisation" deprives man of his usual ecological conditions of life for the adaptation to which he has, in the course of evolution, developed certain adaptational (physiologic and neuropsychologic) mechanisms.

Asserting the existence of common conditions for the emergence of diseases and common, universal regularities of their development supposedly contained in the "disharmony between biology and sociology", the advocates of this conception call all the diseases allegedly engendered by this arrhythmia "diseases of modern civilisation". But by the term "civilisation" they gloss over the class-economic nature of this or that society. Regarding the level of urbanisation and industrial development as the only criterion of "civilisation" they thereby deny the fundamentally different effects produced by capitalist and socialist societies on the health and morbidity of the people.

The conception of "diseases of modern civilisation" is essentially a medical variety of the reactionary theory of a "single industrial society". The advocates of this theory are trying to lay down the foundations for the "convergence" of socialism and capitalism in all spheres of life, including public health.

It is precisely in modern capitalist society that the living and working conditions are becoming increasingly more inhuman. The process of so-called alienation, of opposing man to the economy, politics, technology, culture, etc., is intensifying. This situation

creates moods of emotional desolation, depression and existentialist purposelessness.

By divorcing the problem of alienation from its social-economic basis bourgeois ideologists are trying to "humanise" the living and working conditions by means of so-called "human relations" within the bounds of capitalist society.

One of the requirements of the conception of "human relations" is the establishment of a correspondence between technology and man's neurophysiologic potentialities. But in capitalist society this requirement is often realised in practice not by the establishment of a correspondence between technology and the working conditions, on the one hand, and man's potentialities, on the other, but by removing increasing numbers of people from the sphere of production which is becoming incredibly intensified. In other words, only those who can meet the increased requirements of modern technology are selected from the mass of workers, large numbers of them joining the army of unemployed, the army of the lumpen-proletariat.

Under capitalism the scientific and technological revolution instills into the people a sense of uncertainty in the nearest future, injures them mentally and undermines their mental health. Scientific and technological progress hastens not only the moral wear and tear of machinery, machine tools and equipments, but also of vocations and occupations. The necessity of continuously improving one's vocational skills and sometimes of even changing one's occupation places a heavy burden on the budget of the proletarian family. Vocational improvement, etc., is most commonly acquired at the cost of reducing the expense on food and other vital necessities. So-called age discrimination manifests itself in some measure in all economically developed capitalist countries. Considering the tendency toward the people's "aging", i. e., the increase in the number of elderly people in proportion to the population as a whole, a tragic future awaits a considerable part of the working people of these countries. The growing intensification of labour in capitalist enterprises is accompanied by colossally high rates and rhythms of production exceeding the physiologic potentialities of man's cardiovascular and neuropsychic systems.

A continuously intensifying contradiction has now arisen between the chances offered by the progress of medical science and technology in the control of disease and their use by the broad masses of people in an exploiter society.

In connection with the enhanced role of medicine in the life of modern man bourgeois ideologists are trying to take advantage of medical facts and achievements for various ideological speculations. All the main bourgeois philosophical and sociological trends have their "representatives" in the theory of medicine, especially in interpreting the problem of health and disease, which is a peculiar focus of the ideological struggle in medicine.

The various aspects of technological progress are interpreted by the advocates of these trends one-sidedly and often in a distorted way. The apologists of technological determinism usually consider

technological progress to be the cause of increase in a number of diseases regardless of the social system. An attempt is thereby made to relieve capitalism of the responsibility for the deterioration of the working people's health. They preach a fatal inevitability of disease allegedly increasingly predetermined by technological progress.

The aforesaid indicates, however, that scientific and technological progress is not an autonomously proceeding process, but that its social and social-hygiene consequences are determined by the social and political system of the particular society. Only under socialism where the social, economic and social-hygienic aims and interests of all classes and their state coincide does scientific and technological progress serve to promote the health and welfare of man. Even the negative social-hygiene consequences of the "technicalised" environment which sometimes occur may be and are successfully being overcome in socialist society with its planned system of economy.

NOTES

- ¹ See *Introduction to Geohygiene*, Moscow, 1966, p. 38 (in Russian).
- ² F. Engels, *Dialectics of Nature*, Moscow, 1954, p. 241.
- ³ *Sovetskaya meditsina*, 1959, No. 1, p. 19.

Legal Protection of the Environment in the USSR

In the USSR a proper natural environment is considered an inalienable element of the people's well-being. It is considered as important to satisfy the people's requirements for pure air, optimum hygienic living conditions, sufficient resources of land, water, forests, etc., and their need for food, clothing, housing and cultural values. Accordingly, the improvement of the people's well-being, which is the highest aim of social production under socialism, includes, in addition to the increased production of material wealth, the development of public health and the betterment of working, living and recreation conditions, also measures for environment protection.

In socialist society protection of the environment is not regarded as an emergency problem or as unforeseen results of the growth of productive forces, but as a normal condition of social progress and a component of the programme of communist construction. Soviet people consider nature protection not only a condition of survival of man as a biological species, but also a *sine qua non* for achieving harmony between man and nature, which is a communist ideal.

In the state-political aspect, protection of the environment in the USSR is an organic function of the state based on the general aims and objectives of socialist development.

The Soviet Union does not agree with the ideas expressed in the Western countries on the fatal inevitability of the deterioration of man's natural environment and the inability of society to ensure its protection. According to Soviet scientists, mankind is in no danger of being destroyed by unfavourable changes in the natural environment if the rapacious capitalist exploitation of natural resources is discontinued and the necessary national and international measures for the protection of the environment are taken. The consolidation of the world socialist system, activation of the mass antimonopoly struggle in the developed capitalist countries, and the progressive political changes in the developing countries offer genuine opportunities to meet these conditions.

Since the very establishment of Soviet power the USSR has consistently and purposefully pursued a policy of conserving, restoring and improving the natural environment favourable to human life and the development of material production and culture. The main features of this policy are given below.

Our country possesses vast natural resources and a wide variety of natural conditions, all of which are effectively being used to satisfy the growing requirements of socialist society. But they must all be

used carefully and rationally with due regard for and a comparable appraisal of the immediate and future consequences, so that the continuity of the life of successive generations and the progressive development of material production and culture may thus be ensured.

The constituent elements of the natural environment in the USSR are national property, i.e., they belong to the people in the person of the Soviet socialist state. The state has the exclusive right to own the land and its mineral wealth, the waters, forests and the animal kingdom. This means that no other subjects—enterprises, organisations and institutions (juridical persons), or individual citizens (physical persons)—may own the land and its mineral wealth, the waters, forests and resources of the animal kingdom as property, but may only have the right to use them.

The exclusive state ownership of the aforesaid natural objects creates the best prerequisites for exercising planned supervision of the development of the national economy for the purpose of achieving an abundance of material and spiritual wealth for all members of society, as also make for the maintenance of a favourable natural environment.

As the exclusive owner of the natural resources, the Soviet state ensures the rational combination of public and personal interests in their utilisation and when necessary protects the priority of public interests; at the same time it ensures the requisite combination of interests of the present and future generations. With these ends in view, a complex of state measures for the protection of nature, corresponding to the level of development of society's productive forces and to the concrete conditions in each given period, as well as the foreseeable future, is being elaborated and carried out in the USSR.

The Soviet state has organised the scientifically substantiated utilisation of natural resources for the development of material production and culture, and to raise the living standards of the population, while conserving, restoring and improving the natural environment. The conservation of the natural environment, upon which the viability of people on Earth depends, is given priority over any economic advantage that may result from the utilisation of nature.

Any form of exploitation of natural resources which may affect the environment in the USSR is only allowed with the permission of competent state agencies and under their control. In this connection, the Soviet state has instituted a ramified system of the nature protection agencies invested with sufficient competence, rights and authority, including the right to control and apply sanctions to offenders, and supervises the granting and revoking of permission to exploit natural resources and controls their exploitation. Any activity, including such as is not prohibited by law, is subject to appropriate limitation or total termination, at the discretion of competent state agencies, if it is likely to impair the natural environment.

In order to protect man's natural environment all enterprises, organisations and institutions are strictly obliged to observe the rules concerning the protection of nature, to introduce into production the

latest technology, machinery, instruments and other equipment which help to avoid pollution of the environment, eliminate noises, vibrations, and harmful radiation, and meet the requirements of industrial and everyday hygiene, and so forth.

One of the permanent tasks of the state agencies and public organisations is the optimum organisation of public services and amenities in towns and other inhabited localities, of natural green belts and places of mass recreation and outdoor activities. The organisation of public services and amenities includes protection from all kinds of harmful factors resulting from urbanisation.

Subject to the special protection are the natural complexes of resorts as well as natural monuments, i.e., various natural objects which are of exceptional scientific or cultural and historical value. At resorts maximum restrictions are imposed on industry and other forms of activity which are not connected with satisfying the therapeutic and everyday needs of the population.

The Soviet state ensures effective financing and material support for scientific research and practical measures aimed at solving the problems of man's natural environment and is organising the further development of the system of economic measures and legislative acts, state control and legal responsibility in this sphere of relations.

Individual citizens, as well as officials of all ranks, the staff of enterprises, organisations and institutions, are also obliged by law to protect the environment. Violations of the legal requirements are punished by law.

The Soviet state attaches considerable importance to teaching the working people to appreciate natural resources and imparting to them the necessary knowledge and skills in this sphere. Particular attention is devoted to the proper education of young people.

LEGISLATION

The birth of Soviet legislation on nature protection is closely connected with the name of Lenin who attached paramount importance to this question. His ideas on the careful treatment of natural resources and their thrifty utilisation so as to give the greatest benefit to the nation as a whole are being steadfastly effected by Communist Party and the Soviet state.

Present-day Soviet legislation on the protection of the environment is a vast system of juridical norms issued by the legislative bodies of the USSR, and the Union and Autonomous Republics. In addition to this legislation, there is a large number of subjuridical norms and acts enacted by local Soviets, ministries and departments. The totality of the aforesaid juridical norms regulates the utilisation and protection of natural objects and defines the rights, duties and responsibilities of enterprises, organisations, institutions and individual citizens.

The legal aspect of nature protection in the USSR is based on the *Constitution of the USSR*, according to which the land, its mineral wealth, waters and forests are national property and must be used in a

planned manner for the purpose of increasing public wealth and continuously raising the material and cultural standards of the people. The Constitution of the USSR defines socialist property, including the ownership of natural objects as the sacred and inviolable basis of the Soviet system, as the well-spring of the wealth and might of the Motherland and as the source of the well-being and culture of the working people as a whole. According to Article 131 of our Constitution, every citizen of the USSR is obliged to take care of and help to consolidate socialist public property.

Soviet legislation, based on the Constitution of the USSR, is gradually establishing universal legal norms for the protection of nature and forming legislative branches specialised in the main fields of the environment—the land, its mineral wealth, waters, forests and the animal kingdom.

Laws on nature protection are in force in all the 15 Republics which constitute the Soviet Union. These laws stipulate that all natural resources, whether used in the economy or unexploited, are subject to state protection and their use is to be regulated by the state.

In drawing up plans for the development of the national economy, all state planning and economic agencies are obliged: a) to take into account the interrelations between all elements of the natural environment, so that exploitation of some natural objects does not harm the others; b) in utilising retrievable natural resources, to provide not only for the complete satisfaction of the country's current needs, but also for conservation and renewal of these resources on the basis of extended reproduction; c) to regularly provide and allocate funds and other material means in a planned manner for the protection and reproduction of the natural environment; d) not to permit any curtailment of the area of useful natural land if more valuable land and economic units are not created in their place; e) in all forms of construction to ensure maximum conservation of particularly valuable natural objects (natural monuments). These laws, furthermore, provide for public participation in nature protection and the organisation of teaching, propaganda and research in this field.

Codification of universal legal norms on nature protection on a country-wide scale is now expected by promulgation of an appropriate state law. Branch legislation—land, water, forest, mines—is now being codified by dissemination of the *Principles of Legislation of the USSR and the Union Republics*, and corresponding codes (land, forest, water, mines) in each Republic. The principles and codes include a set of rules on nature protection applicable to various natural objects.

Of the main laws pertaining to the protection of the natural environment, the *Principles of the Legislation of the USSR and the Union Republics on Public Health* (1969), the *Principles of the Land Legislation of the USSR and the Union Republics* (1968), and the *Principles of Water Legislation of the USSR and the Union Republics* (1970), are the most significant.

In accordance with the *Principles of the Legislation of the USSR and the Union Republics on Public Health*, protection of the health of

the people is the duty of all state agencies, enterprises, institutions and organisations. In the USSR the health of the people is protected by a system of state socio-economic and medico-sanitary measures, including measures for improving the external environment, ensuring sanitary protection of reservoirs, of the soil and the air.

The principles of legislation on public health attach considerable importance to prophylactic sanitary-hygienic and sanitary-antiepidemic measures. For this purpose they include a number of requirements for the protection of the natural environment, connected with the organisation of everyday life, work and recreation.

The management of enterprises and institutions, design, building and other organisations, as well as collective farms, is obliged, when designing, building, reconstructing and operating the enterprises and everyday facilities and services, to envisage and carry out measures to prevent pollution of the environment. For failure to discharge these duties, the management bears responsibility in accordance with the laws of the USSR and the Union Republics.

It is prohibited to put into operation new and reconstructed enterprises, workshops, sections, installations or other objects without provisions for effective purification, neutralisation and trapping of harmful discharges and waste products. The sanitary-epidemiological services have the right to prohibit or temporarily to halt the operation of units which may harm the health of the people by their discharges and waste products.

Executive committees of the local Soviets, and other state agencies, enterprises, institutions and organisations are obliged to carry out measures to prevent, reduce and eliminate noise in production, dwelling and public buildings, yards, streets and squares in towns and other inhabited localities. All citizens are obliged to observe the rules concerning the prevention and elimination of noise in everyday life.

The principles of legislation on public health envisage the supervision of the production, application, storage and transportation of radioactive, poisonous and strong substances, the regulation of measures preventing and eliminating infectious diseases, and the establishment of the standards of man's natural environment and of the norms of permissible concentrations for substances which pollute the air, reservoirs and so forth.

The *Principles of the Land Legislation of the USSR and the Union Republics* stipulate in their introduction that the scientifically substantiated utilisation of the land as a whole and its protection, as well as every possible enhancement of the fertility of the soil, is the common task of the entire people. The Principles also include a set of legal requirements which ensure the rational utilisation and protection of land. These requirements are primarily aimed at preventing industry from taking over valuable agricultural land where there is no absolute necessity to do so. The Principles stipulate that nonagricultural land, land unfit for agriculture or inferior agricultural land should be provided for the construction of industrial enterprises, housing, railways and highways, power transmission lines, trunk pipelines, as well as for other nonagricultural needs.

The rational utilisation of the land is guaranteed since priority is given to exploitation of the land for agricultural purposes. This principle means that land properly recognised as fit for agriculture must be allotted primarily to agricultural enterprises, institutions and organisations.

State and collective farms, as well as other agricultural enterprises, are obliged by the Principles of the Land Legislation to provide in their plans concrete measures for the enhancement of fertility and for scientifically substantiated land utilisation, to introduce the most effective crop systems and proper crop rotation, and to carry out meliorative measures and control soil erosion.

This law envisages the organisation and protection of water and forest areas, health resort and preserve land; it establishes ways and means of protecting the land resources, effecting melioration, recultivation of land misused by industry, organisation of public services and amenities in inhabited localities, and the conservation of pleasant landscapes while maintaining a fast rate of development of the national economy.

The *Principles of Water Legislation of the USSR and the Union Republics* establish the most important rights and obligations pertaining to the use of water, the rules and conditions concerning the use of water objects and the manner of their utilisation. The need to protect the waters from pollution, contamination and depletion is mentioned throughout this legislation.

Considering the fact that most industrial and other enterprises directly or indirectly affect the condition of rivers, lakes and reservoirs the Principles formulate the demands as regards distribution, design, construction and operation of these economic establishments. It is prohibited to put into operation enterprises that are not equipped with the appropriate systems for cleaning drainage water. It is also prohibited to set up any irrigation, watering and drainage systems, water intake and other hydrotechnical structures unless they are equipped with devices guaranteeing the rational utilisation and protection of the water resources.

All enterprises, institutions and organisations are obliged by law to carry out measures aimed at preventing the discharge of polluted waste water by improving the technological processes, reducing the consumption of water, introducing a waterless technology, closed cycles of water supply, etc. While establishing the principle of overall utilisation of the water resources as one of the main principles governing water utilisation, the Principles first and foremost envisage the satisfaction of the everyday needs of the population for drinking water.

The USSR has a fairly well developed legislation on the protection of forests and other vegetation, mineral wealth, the animal kingdom, pleasant landscapes, atmospheric air, etc.

The observance of the laws on protection of the natural environment is strictly controlled. Anyone violating these laws is subject to prosecution. Depending on the extent of social danger and the nature of the harmful consequences, these violations are qualified as crimes

or misdemeanours, and the guilty officials or private citizens are made responsible accordingly.

Thus, the following actions are recognised as crimes and are punished by law: destruction of or substantial damage to forest areas by fire caused deliberately or by careless handling of fire or sources of great danger; violation of veterinary rules, as well as rules established for controlling plant diseases and pests, if this has brought about serious consequences; violation of hunting and fishing laws; the illegal hunting of beavers and fur-seals; timber rafting or blasting involving violation of the rules protecting fish resources; violation of the rules of mining, damage to crops and field-protective plants, and unwarranted felling of timber; violation of rules established for controlling epidemics; pollution of reservoirs and the air; deliberate damage to natural objects which are under state protection.

Thus, Soviet legislation closely regulates the activities of the people, connected with the utilisation of natural objects and affecting the natural environment, and thereby determines the legal regime, law and order for the purpose of conserving, restoring and improving the favourable state of man's natural environment.

MANAGEMENT

All measures for nature protection are in general supervised by the supreme bodies of state power and state government in the person of the USSR Supreme Soviet, the Presidium of the USSR Supreme Soviet and the USSR Council of Ministers. The supervisory activity of these bodies manifests itself primarily in elaborating and approving plans for the development of the Soviet national economy, which determine the current and long-term measures for nature protection and the provisions for the rational utilisation of natural resources.

The functions of general supervision are also exercised by the Supreme Soviets and Councils of Ministers of the Union and Autonomous Republics, local Soviets and their executive committees which pass decisions and resolutions and issue instructions on questions of planning and financing, as well as material and technical provisions for the measures concerning the protection of man's natural environment; they also regulate ways and means of exploiting and protecting various natural objects.

The current regulation and control of man's natural environment are exercised by a number of state agencies which specialise in certain types of natural objects, branches of the national economy and the existing division of functions of state government within the federal system of the USSR. The system of specialised bodies of the USSR comprises about a dozen ministries and departments.

Some universal functions in protecting nature are carried out by the *USSR Ministry of Agriculture* which since 1965 has had a *Chief Administration for Nature Protection, Preserves and Hunting*. According to its Provisional Regulations (1968), its main objectives are: a) general supervision of nature protection, preserves and hunting in the

country; b) participation, together with interested organisations, in planning national economic measures connected with the overall utilisation of natural resources and remaking of nature; c) observance of the laws on nature protection, preserves and hunting; d) coordination, according to the established order, of the activities of public organisations in nature protection, as well as those of fishermen's and hunters' associations; e) representation of the USSR in international organisations connected with nature protection, preserves and hunting.

In addition to the aforesaid Chief Administration, the USSR Ministry of Agriculture has a special inspection of land protection and a service for controlling the use of chemical weed- and pest-killers, as well as that of fertilisers in agriculture.

In accordance with the *Regulations on the USSR Ministry of Health* (1968), this Ministry exercises state sanitary supervision according to the established order. The *Regulations on State Sanitary Supervision in the USSR* approved by the USSR Council of Ministers (1963), determine ways and means of supervision and grant the appropriate public health agencies extensive rights and powers, including the right to control measures aimed at preventing and stopping the pollution of surface and underground waters, used by the population for drinking, as well as for cultural and everyday purposes, and the pollution of the soil and atmospheric air by industrial emission and everyday waste materials.

The public health agencies play a leading role in working out permissible norms for pollutants in various spheres of man's natural environment, as well as other hygienic norms, the requirements for the sanitary and epidemic security and rational safety of the population. These agencies also have the right to see to it that these norms and requirements are observed.

The *USSR Ministry of Melioration and Water Management* has a system of agencies for ensuring the overall utilisation and protection of the water resources. More than 70 basin inspectorates directly watch over the implementation of the requirements concerning the overall utilisation and protection of the country's main reservoirs under the jurisdiction of this ministry. These bodies of inspectorates have the right to issue or refuse permission for water utilisation.

The protection and restoration of forests is one of the duties of *State Committee on Forestry Under the USSR Council of Ministers* and its system of subordinate agencies. The fish and other biological resources of reservoirs are protected by a special service of the *USSR Ministry of Fisheries*. Mineral wealth is protected by the *USSR Ministry of Geology and State Committee on Supervising the Safety of Work in Industry and Mining under the USSR Council of Ministers*.

The Union Republics also have a large number of state agencies supervising the protection of the environment. In the Lithuanian, Byelorussian, Ukrainian, Moldavian and Azerbaijan Union Republics there are state committees on the protection of nature.

In carrying out the tasks of protecting the environment, an exceptionally important role is played by the parliamentary control of the activities of executive and administrative bodies of state power

and state government, the control being exercised by the USSR Supreme Soviet, the Supreme Soviets of the Union and Autonomous Republics and local Soviets.

The Supreme Soviet of the USSR and the Supreme Soviets of the Union Republics have standing committees of deputies on nature protection. They take an active part in working out nature protection laws. When state plans for the development of the national economy are considered these committees elaborate recommendations aimed at improving the utilisation of land, minerals, water, forest and other natural resources.

The territorial, regional, district, town, settlement and village Soviets have organised 3,313 permanent nature protection committees numbering more than 23,000 deputies. These committees are exerting an increasingly greater influence on improving the utilisation and protection of natural resources.

It should be noted that the procurator's offices and the courts continually keep an eye on questions concerning nature protection. They see to it that the laws on nature protection are strictly observed; they wage a struggle against transgressors in this sphere, analyse the existing laws and take measures to consolidate them and enhance the effectiveness of the system of legal responsibility. Thus, in April 1972 the Plenum of the USSR Supreme Court passed a resolution "On the Practice of Applying Nature Protection Laws by the Courts" and elucidated the most complicated questions concerning the legal responsibility of the transgressors of nature protection laws.

Lastly, the questions of the protection of the natural environment are also under the jurisdiction of people's control agencies. The People's Control Committee of the USSR and similar Republican and local committees have repeatedly discussed violations of the nature protection laws and applied strict legal measures to the transgressors. A number of officials guilty of polluting reservoirs and the atmospheric air, commissioning and operating enterprises not fitted with purification systems and violating the rules of land utilisation, etc., have been fined.

Thus, there is a large and complex government organisation in the Soviet Union, whose activities are aimed at ensuring the rational utilisation of natural resources, conserving, restoring and improving the natural environment; this system is highly effected.

On the basis of theoretical research and the generalisation of experience in observing the existing laws, Soviet jurisprudence is working out forecasts and recommendations for the improvement of legislation and of the work of the state system of nature protection agencies.

A department dealing with the legal problems of environment protection has been organised at the Institute of State and Law, USSR Academy of Sciences. The Institute coordinates work in this field and ensures the participation of lawyers in the overall interdisciplinary research of Soviet scientists which is aimed at improving and conserving the natural resources.

THE LATEST MEASURES

Where a developed legislation and a state system of supervising the protection of the external environment exists, the main responsibility in the solution of the problem shifts to organisational activity. In order to actually carry out the political aims and legal demands for protection of the environment, effective scientific and technical means of nature protection must be introduced. The planning, financing and material and technical conditions for the measures aimed at protecting the external environment, should also be ensured, the state of the environment and the correct utilisation of the natural resources strictly controlled and a struggle waged against transgression of the laws.

It is precisely this aspect of the matter on which the USSR Supreme Soviet focused its attention when it considered at its session of September 19-20, 1972, the question of further improving nature protection and of the rational utilisation of natural resources. The Decision of the USSR Supreme Soviet on this question states that concern for nature protection and the better utilisation of natural resources is one of the most important objectives of the state.

On December 29, 1972, the Central Committee of the CPSU and the USSR Council of Ministers passed a Decision *On Strengthening Nature Protection and Improving the Utilisation of Natural Resources* which also took into account the suggestions made by deputies of the USSR Supreme Soviet at the September 1972 session. This document contains a comprehensive and concrete programme of organisational and economic measures in the sphere under consideration.

In order to organise and coordinate research and development aimed at solving the most important scientific and technical problems pertaining to the rational utilisation of natural resources and the protection of the environment, the CC CPSU and the USSR Council of Ministers obliged the State Committee on Science and Technology of the USSR Council of Ministers, together with a number of other government agencies, to work out in 1973-1974 a scientific and technical forecast for the coming 20-30 years of the possible changes in the biosphere as a result of the development of various branches of the national economy.

It has been established that the assignments to solve the most important problems concerning the protection of the environment are included in a special part of the state research plan which is to be of the nature of a programme of overall problems relating to the protection of the natural environment and rational utilisation of the natural resources.

State Committee on Science and Technology under the USSR Council of Ministers was charged together with the USSR Academy of Sciences to organise an Interdepartmental Scientific and Technical Council on problems of environment protection as a whole and of the rational utilisation of natural resources; this Council must discharge a number of important governmental advisory functions. For example, it must consider concrete suggestions for the establishment of norms

and rules for the protection of the environment, including pollution control, define the main scientific and technical problems in this sphere and so forth.

New regulations have been introduced into the state planning of economic measures for the protection of the environment. It is a well-known fact that planning is the main feature of the socialist system of economy. Measures on nature protection are also taken in a planned manner. Several forms are used here, namely, plans for the development of the national economy, territorial planning, schemes, cadastres, balances and specialised long-term programmes.

Five-year and annual state plans for the development of the national economy of the USSR envisage in the appropriate branches of the economy various types of work and other economic measures and allocations for the protection of the land, its mineral resources, waters, forests, and vegetable and animal kingdoms, control of pollution of reservoirs and the atmosphere, noise and other harmful factors, the organisation of public services and amenities in towns and places of recreation, the utilisation of production and everyday wastes and so on.

The overall approach to the solution of problems concerning the protection of the environment is becoming increasingly more important. Economic, technical and other measures on these problems are being planned and carried out with due regard for the general interconnections between natural phenomena, the unity of all of nature's constituent parts and elements. Overall measures for nature protection have been planned since 1969. In the Russian Federation and a number of other Union Republics such plans have been elaborated as part of five-year plans for the development of the national economy.

In accordance with the aforesaid resolution of the CC CPSU and the USSR Council of Ministers, long-term annual plans for nature protection measures within the limits of the planning of the national economy will be established in the USSR as a whole from 1974 onwards. The USSR State Planning Committee has been charged with elaborating methodological instructions and a list of indices and forms for drawing up such plans.

State planning makes it possible to establish optimum proportions between the different branches of the national economy and culture, to rationally distribute the productive forces and spend and restore the natural resources on the basis of the laws governing the development of society and nature. The experience of fulfilling eight five-year national economic plans in the USSR confirms the fact that it is possible to control successfully and in a planned manner pollution and other negative phenomena which disturb the favourable state of the environment.

FINANCING

In the USSR the nature protection measures are carried out in the main at the expense of the state. The cost of such measures is

obviously increasing all the time. For example, the cost of the purification of the external environment and the protection of water sources grew from 245 million roubles in 1967 to 398 million roubles in 1971. Greater outlays in this field do of course bring extremely favourable results.

The following are concrete examples illustrating the situation in the RSFSR, the largest Soviet Republic. During the past five-year plan period (1966-1970) more than 5,000 purification installations with a capacity of 23.4 million cubic metres of water per day were put into operation in the Republic. Cyclic systems of industrial water supply with a total capacity of some 64 million cubic metres of water per day were built. Over the five years this made it possible to reduce the discharge of untreated effluents into reservoirs of the RSFSR by close on 32 million cubic metres per day. More than 11,000 dust and gas traps were installed for the purpose of protecting the air basin. This made it possible essentially to improve the state of the atmosphere in many towns and other inhabited localities.

Of late, Moscow has become one of the cleanest and best organised of the world's largest cities. Hundreds of unhealthful industrial enterprises have been moved out of the city; some 1,500 industrial and utility installations have been gasified; more than 4,000 small boiler rooms have been eliminated; purification systems have been built at 780 industrial enterprises and motor transport establishments; and some 7,000 dust and gas traps are operating in plants and factories.

The financing of the measures for the protection of the natural environment in the USSR is characterised by a number of specific features resulting from the socialist nature of the economy and the state ownership of all the natural resources.

In the first place, like public health, the measures to protect natural environment are financed without expectation of any profit except in cases where the utilisation of waste materials results in some kind of product.

The extent of financing is not regulated by any stable norms, but is determined by the requirements and possibilities, as well as the planned measures for the construction of new or reconstruction of already operating industrial enterprises and other economic establishments.

In the Soviet Union there are no special funds to finance nature protection measures. The overwhelming majority of measures for environment protection connected with building capital structures are financed with funds from the Union, Republican or local budgets, depending on the economic importance of the establishments being built.

As for the expenses unconnected with the building of capital establishments and the current expenses on maintenance, repairs, operation and the servicing of the structures and installations for the protection of the natural environment, they are defrayed by enterprises, organisations and institutions. They are included in the production costs and are taken from the incomes received from the sale of

products or from services. The financing of measures to protect the natural environment is so closely connected with the financing of production measures that it is practically impossible to account for them separately and with sufficient accuracy.

Nor can the accumulation of means necessary for the protection of the natural environment be separated from the sources of revenue or the incomes of enterprises, institutions or organisations. In the USSR natural objects are, as a rule, used free of charge. However, some forms of taxation are conditioned by the use of natural objects: for example, fixed payments to the budget, payment by number of trees cut down in forestry and paid licences for bagging some species of animals. In the main, though, the means accumulate as a result of collecting taxes on turnover, income taxes, payment for production funds, deductions from profits, redistribution of what is left of profits and of other incomes from the socialist economy.

In the Soviet Union no fees are charged for drainage of waste waters and other industrial wastes. Formerly, during 1932-1962, such fees were charged, but they did actually have an adverse effect because in a number of cases they enabled the industrial enterprises to evade their obligation to provide water protection. In this connection, the fees for the drainage of waste waters were annulled.

At the same time a system of compensation is widely being employed in the USSR; compensation is connected with the discontinued utilisation of natural objects or changes in the conditions of their utilisation, as well as material damage resulting from violation of the nature protection laws. Thus, in cases where agricultural land is used for nonagricultural purposes, the organisation for which the land is alienated must compensate the former land tenant for all the losses incurred due to the alienation of the land and for the losses in agricultural production as a branch of the national economy. If the disposal of waste waters has resulted in the destruction of fish in a reservoir, the guilty enterprise is obliged to compensate the fishery for the losses in accordance with the established practices and so forth.

On the whole, the financial system in the Soviet Union enables the state very purposefully, consistently and flexibly to implement the policy of protecting man's natural environment with a certain degree of success.

THE PUBLIC

In the USSR the activities of state nature protection agencies rest on broad public support. The Communist Party and the Soviet state encourage public organisations and the broad masses of the people in every possible way to take part in activities of conserving, restoring and improving the environment.

The republican Nature Protection Societies numbering more than 30 million members constitute a large force that helps to carry out the nature protection policies. Typical in this respect are the activities of the All-Russian Nature Protection Society, the largest of these societies.

The All-Russian Nature Protection Society was founded in 1924 and now numbers some 20 million members, which is about 15% of the population of the Russian Federation. Moreover, this society has 50,000 collective members, i. e., the staff of enterprises, organisations and institutions.

The All-Russian Nature Protection Society has launched a mass movement under the slogan "For a Leninist Attitude to Nature". This movement has already carried out a good deal of very varied work: it has afforested close to 3 million hectares of land, has intensified the control over the state and utilisation of land, water and other natural resources, and has extensively propagated ideas of nature protection. Public technical committees and control posts have been set up at many industrial enterprises. These committees and posts make every effort to protect the water and air basins from the pollution caused by industrial waste.

The republican nature protection societies, as well as the trade unions and the *Znaniye* (Knowledge) All-Union Society for the Dissemination of Scientific Knowledge, carry out extensive educational work among all sections of the population, through lectures, films, the periodicals, television, the publication of books, pamphlets, posters, leaflets, etc. Many members of these organisations take part in controlling the implementation of the legal requirements for protecting the natural environment and in the struggle against poachers. The state inspection bodies for nature protection are assisted by a large number of public inspectorates numbering about 140,000 members.

This vast amount of public work is done on a voluntary basis and in many cases enhances the measures on nature protection and actually improves the natural environment. At the same time, it stimulates the public to take a greater interest in nature protection and be increasingly active in solving the problems of conserving, restoring and improving man's natural environment.

INTERNATIONAL COOPERATION

Considering the global nature of the problem of protecting the environment and taking into account the common interest of all the countries in the world in a successful solution of this problem, the Soviet Union is actively promoting international cooperation in this sphere.

Simple, straightforward guidelines on this question are contained in the decisions of the 24th Congress of the CPSU. The programme of the struggle for peace and international cooperation, for freedom and the independence of peoples, advanced by the Congress reads: "Our country is prepared to participate together with other states concerned in settling problems like the conservation of the environment, development of power and other natural resources, development of transport and communications, prevention and eradication of the most dangerous and widespread diseases, and the exploration and development of outer space and the world ocean."

Since the very first years of its existence the Soviet Union has taken measures to promote international nature protection, both as bilateral and multilateral cooperation—global and regional.

The Soviet Union has signed agreements with all the neighbouring countries on questions of water and fishery protection, quarantine and plant protection, while with the Mongolian People's Republic and the Chinese People's Republic it has additionally signed agreements on controlling forest fires. The treaties on border issues concluded by the USSR with the contiguous countries contain clauses on overall nature protection and the conservation of various resources in borderland areas.

Exchange of scientific and technical experience and information, as well as the joint research of a continuously increasing number of bilateral committees on economic, scientific and technical cooperation organised on the basis of appropriate agreements between the USSR and other states, is growing apace.

Guided by principles of disinterested aid and mutual advantage, the Soviet Union is assisting more and more states in Africa, Asia and Latin America to organise rational utilisation of natural resources and develop melioration, agriculture and fishing. The Soviet Union considers it proper for the developing countries to combine nature protection and the rational utilisation of natural resources with accelerated socio-economic development through profound reforms and the complete realisation of the principle of state sovereignty over the natural resources.

An important achievement in the development of the international efforts on protection of man's natural environment is the establishment of cooperation between the Soviet Union and the United States of America on the basis of the Agreement concluded on May 23, 1972. This cooperation may prove extremely helpful in solving the urgent problems of environment protection.

Undoubtedly fruitful is the cooperation of the Soviet Union with France and Sweden. Another example of cooperation on a bilateral basis is the agreement between the Soviet Union and Canada on the Arctic Zone. The parties have agreed that this cooperation might be aimed, in particular, at preventing the pollution of the water of the Arctic Zone and adopting other measures to maintain the natural balance in these areas.

Large-scale concerted action aimed at conserving, restoring and improving the favourable natural conditions is the main feature of the international cooperation of the CMEA countries with the active participation of the USSR.

The Comprehensive Programme for the Further Improvement and Extension of Cooperation and the Development of Socialist Economic Integration by the CMEA Member Countries adopted in 1971 envisages, among the basic problems subject to joint elaboration with the use of the most effective forms of cooperation, elaboration of measures for nature protection.

These measures are now being carried out by national organisations in the socialist countries in accordance with the *Agreement on*

Scientific and Technical Cooperation on the Overall Problem "Elaboration of Measures for Nature Protection" concluded on April 28, 1971. A detailed programme of scientific and technical research was adopted on the basis of this document. The Programme envisages concrete assignments in six basic interconnected directions, namely, the hygienic aspects of nature protection, the protection of biogeocoenoses, the protection of the atmosphere from pollution, the protection of water resources, the elimination and utilisation of everyday and industrial waste, the socio-economic, organisational, legal and pedagogical aspects of nature protection, including legal questions of international nature protection. The signatories to the Agreement have agreed to organise a Council of Representatives on the given problem, as well as coordinating centres and scientific and technical councils in all six directions.

The 27th session of the CMEA countries (June 1973) outlined measures for considerably furthering cooperation on a multilateral basis and recommended that broad cooperation on environmental problems be promoted between all countries and international organisations concerned.

Soviet organisations and scientists have for a number of years been participating in many international nongovernmental organisations dealing with various aspects of the problem of natural environment, as well as in the activities of UNO institutions. They have made a substantial contribution to the realisation of such international projects as the International Hydrological Decade, the International Biological Programme, the preparation of the UNESCO "Man and the Biosphere" long-term programme, as well as the elaboration of some international nature protection documents, including the "List of National Parks and Their Equivalent Preserves" in the UN member countries, and the "Red Book" of rare species of animals and plants.

* * *

Thus, the Soviet Union is striving to do all that is necessary, both at home and in the international arena, to conserve, restore and improve favourable natural conditions for the life of man on Earth and to develop material production and culture. The policy of the Soviet Government in the sphere of protecting the natural environment stems from the premise that not only the present, but also future generations of men should have every opportunity to avail themselves of all the blessings provided by nature. Soviet law is an effective instrument for the active realisation of this policy.

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Cuba at a New Stage of Socialist Construction

The first workers' and peasants' state in the Western Hemisphere, the Republic of Cuba, continues to gain strength, firmly steering towards the further deepening of socialist transformations.

The whole country is engrossed in work, study and the implementation of the increasingly complex tasks of socialist construction. New distinctive features are coming to the fore in the republic's socio-economic development. Wider and more effective use is being made of the socialist system's potentialities: the organisation of production is being improved and the rate of economic reconstruction is being stepped up. Cuba is more actively joining in the international socialist division of labour and deepening her economic integration with the other countries of the socialist community.

The republic has substantially consolidated its international position, especially its political standing in Latin America. It is acquiring growing prestige as a champion against imperialism and as a builder of the new society, where the hallmarks are labour, creation, culture, education and a high sense of civic duty and internationalism. The life of the Cuban people, their cultural upswing, labour enthusiasm, and lofty aims and ideals provide a striking contrast to the Latin American states ruled by the latifundistas, capitalists and foreign monopolies.

The victory of the Cuban revolution in 1959 and the socialist path of development taken by the young republic signified the advance of the new world to the Western Hemisphere and another defeat for capitalism as a system. Without copying Cuba but inspired by her historic example the Latin American peoples are taking the road of far-reaching social reforms and fighting imperialism with growing determination. Broad liberation processes are unfolding in Latin American states. The attempts of the imperialists to hold up these processes are doomed to failure as had been the case with the widely played up Alliance for Progress, which brought US imperialism neither an "alliance" with the Latin American countries under its aegis nor "progress" for these countries. Only recently the private domain of US imperialism, the huge continent is entering a new stage of the democratic movement and the anti-imperialist liberation struggle.

The revolutionary reforms and socialist construction in Cuba attract the close attention of revolutionaries and fighters for the national-liberation movement not only in Latin America but also in other parts of the world. Cuba's experience is of immense international significance. One of the prime lessons of that experience is, as was justifiably noted by Fidel Castro, the First Secretary of the Central Committee of the Communist Party of Cuba and Prime Minister of the Revolutionary Government, that "in our age a true revolution and true national independence can be founded only on socialist, anti-imperialist and internationalist principles".¹

The revolution has armed the Cuban people with the most advanced revolutionary teaching, Marxism-Leninism, and fundamentally altered the class structure of Cuban society. The exploiting landowner and capitalist classes were swept away and an end was put to domination by foreign, chiefly US monopolies. An agrarian reform and the nationalisation of industry, trade, transport and the banks were among the first social measures to be put into effect. The small-commodity peasant economy is the only surviving old socio-economic structure. The socialist structure, which embraces the urban and rural working class, is predominant. A new social stratum has appeared. This is the working intelligentsia, which is active in socialist construction. The backbone of the new system is the solid alliance between the workers and the peasants, an alliance founded on common basic interests in the socialist revolution. Cuba's Communist Party and Revolutionary Government tirelessly strengthen and promote this alliance.

In the course of the revolutionary reforms the working class and the peasantry have undergone substantial changes. The workers, who have taken over the basic means of production formerly owned by local and foreign capitalists, have become the leading force of Cuba's new society, its decisive element charting the country's political life. The entire industry is now in the socialist sector of the economy. In the countryside development took the form of the establishment of large socialist agricultural enterprises. This became possible on account of the specifics in Cuba, where prior to the revolution large agrarian capitalist enterprises were predominant and there was a large rural proletariat with a high level of class organisation. Most of these former estates were quickly reorganised into socialist enterprises, which today own 70 per cent of the farmland and account for the greater share of the country's farm output.

In parallel, the private sector continues to play a certain role in the Cuban economy. Land was distributed to former tenant-farmers and other land-hungry and landless peasants, who under capitalism had been ruthlessly exploited and oppressed. They receive every possible assistance and support from the Government. There has been an incomparable improvement of their living standard and of the social and cultural services in rural localities.

In line with the specifics obtaining in Cuba the Revolutionary Government is promoting the socialist transformation of the countryside not so much through the formation of peasant cooperatives (although some kinds of cooperatives, such as consumer-marketing, credit and collective land cultivation, are being organised) as by drawing the peasants directly into the socialist sector. The private sector, the Cuban leaders say, will remain in existence for a long time. Of course, legislative, political educational and other measures are being taken to prevent the growth of capitalist elements in the countryside.

Having brought national and social emancipation to the Cuban

people, the revolution has given wide scope for the development of the productive forces. This is convincingly illustrated by Cuba's swift progress in various spheres of her economy. Her power-generating capacities have almost trebled, and by 1975 she will be producing four times more electric power than before the revolution. The output of nickel has doubled and cement production has trebled. Many new factories and other projects have been built in the heavy and light industries. The Republic's merchant marine has increased nearly ten fold.

Agriculture has been given particularly close attention. The record sugar output of 8,500,000 tons in 1970 has not given rise to complacency. While continuing to enlarge the area under sugar-cane and improving the varieties being planted, the Communist Party and the Revolutionary Government are working further to mechanise labour-consuming processes in harvesting and to modernise the sugar refineries. In the period 1958 through 1970 the tractor fleet increased from 2,000 to 50,000 units. Hundreds of combine-harvesters of Cuban and Soviet make are in operation. Much is being done to step up the production of rice, which is now being grown in reclaimed swamp and waste lands. To ensure high yields regardless of the weather, a system of reservoirs is being built; already today these reservoirs have an aggregate capacity of over 3,000 million cubic metres, giving Cuba a hundred times more irrigation resources than she had before the revolution. The area under tobacco, coffee, tomatoes, beans and citrus has been enlarged. Cuban selectionists are evolving highly productive breeds of livestock adapted to tropical conditions.

New projects dot the Cuban landscape—factories, livestock farms, dams, schools and hospitals. More housing is being built. Towns are acquiring a new look and the countryside is changing beyond recognition. In 1972 the allocations for housing construction totalled 605 million pesos; it is estimated that by 1975 the allocations for that purpose will have reached 2,000 million pesos.

The radical way in which social problems have been resolved in Cuba is an example for other Latin American countries. Illiteracy has been wiped out. Education is universal and free. Since the revolution the number of students at general and special secondary schools and at institutions of higher learning has almost trebled and today totals 2,500,000. Special attention is given to building boarding schools, where instruction is combined with practical work. For the level of her medical services Cuba is among the leading countries in the Western Hemisphere. Unemployment was abolished within a few years after the revolution. This is a notable achievement considering that almost one-quarter of the able-bodied population was chronically unemployed before the revolution. State expenditures on social security have increased nearly fivefold compared with 1958.

II

Momentous changes have taken place in Cuba's socio-political life. Socialism has struck deep root among the people, whose sense of

internationalism and anti-imperialist feeling have grown immeasurably.

The Communist Party has become the country's leading political and organising force. It was formed under extremely difficult conditions, but the fact that it has been able to carry the masses with it in the building of socialism is further evidence that Marxist-Leninist leadership is vital in the struggle for socialism. On this point Lenin wrote: "Without a party of iron that has been tempered in the struggle, a party enjoying the confidence of all honest people in the class in question, a party capable of watching and influencing the mood of the masses, such a struggle cannot be waged successfully."² In this connection the Cuban leaders justifiably point out that "the principle that the revolution must be led by the vanguard's political organisations is logical, correct, natural and basic."³

The Communist Party of Cuba today has over 150,000 members. It is ceaselessly promoting the ideological, political and organisational unity of its ranks and improving the forms and methods of its work with account of the experience of fraternal parties. It has consolidated its position in all areas of socialist construction as the guiding force, as the vanguard and political leader of society.

A noteworthy feature of the Cuban revolution and the source of its invincible strength is the massive support it receives from the masses, the implicit confidence of the people in the Communist Party and the Revolutionary Government. The mainsprings of this support and trust lie in the very process of the revolution's development, in the fact that the revolutionary vanguard correctly applies the Marxist-Leninist tenet that only genuinely popular movement can lead to a true revolution, that it is the task of revolutionaries "to arouse the working masses to revolutionary activity, to independent action and to organisation".⁴

It will be recalled that at the very outset of the revolutionary upsurge in Cuba the men who attacked the Moncada barracks in 1953 entered upon that heroic action in order "to start the war, conduct it with the participation of the people and win it with the support of the people".⁵ This guideline of drawing the people into the revolution, winning them over and ensuring unity in the revolution itself and in the building of socialism, and also the clear-cut understanding that without the masses socialism will lose the battle has always been intrinsic to Cuba's revolutionary vanguard and a salient feature of the work of the Communist Party of Cuba.

Cuba's Communist Party and Revolutionary Government are drawing large numbers of working people into the administration of the state and into the fulfilment of the major tasks confronting the country. They rely on a large network of public organisations that were formed during the first years after the revolution and today embrace practically the entire population. The Young Communist League devotedly assists the Communist Party. Also active in helping the Communist Party are the Committees for the Defence of the Revolution, the trade unions, the Federation of Cuban Women, the National Association of Small Farmers and other public organisations.

In Cuba's political life an important role is played by the Committees for the Defence of the Revolution. This organisation, the largest in Cuba, initially sprang up as a system of public security in face of the sharp exacerbation of the class struggle and hostile actions by US imperialism. Subsequently, it spread out and became a vital element of Cuba's social mechanism, an instrument for drawing the people into the country's administration, and a mass school of revolution and socialism.

Today over 4,200,000 people, i. e., 70 per cent of Cuba's population over the age of 14, are embraced by these committees. They are organised by city blocks and streets, townships, offices and factories. Their functions are extremely diverse. They help the central and local authorities to maintain law and order, and to combat counter-revolutionary activity. One of their principal aims is to further the political education of the people. They supervise the state of sanitation in towns and townships and help the Ministry of Home Trade, the Ministry of Labour, the Ministry of Education and other governmental departments. In effect, no massive campaign is started without their participation. The experience of setting up and operating these committees is undoubtedly a valuable contribution by the Cuban people to the practice of the revolutionary movement.

It is not at all easy to organise work among the masses. This work requires constant attention and a creative approach. Even when a correct guideline has been charted it does not come into effect of its own. "At a certain moment of our revolutionary process," Fidel Castro noted, "there was a certain neglect for the development of the mass organisations, a certain weakening of the activity of these organisations..." This was due to the fact that "when definite tasks were being implemented, practically everybody proved to be engaged in production, in economic activity".⁶

The Cuban Communists give their unremitting attention to promoting the trade union movement. At present there are 21 branch trade unions and it is planned to hold a trade union congress in the immediate future. These workers' organisations are active in helping to resolve problems linked with the development of production and the protection of the working people's rights. Labour enthusiasm has soared among the workers and the socialist emulation movement has risen to an unprecedented level.

In their work among the people the Cuban Communists attach paramount importance to fostering revolutionary consciousness and fidelity to Marxism-Leninism and internationalism. The dual task before them is to help mould a socialist consciousness among the people and counter the hostile ideology penetrating the country through various channels, in other words, to raise the general educational and ideological level of the masses, the level of revolutionary propaganda. The Central Committee of the Communist Party of Cuba has pointed out that the success of the struggle against imperialism's attempts to nullify the victories of socialism is "inseparably linked with a tireless ideological struggle against chauvinistic, reformist, revisionist, opportunist and neutralist views and bourgeois

liberalism, which the enemies are using in their efforts to weaken and destroy socialism".⁷

III

At present, the centre of the struggle for socialism in Cuba is increasingly shifting to the sphere of economic development, of the building of the material and technical basis of the new society. "Politically our revolution signifies much in our continent," Cuban President Osvaldo Dorticos said recently. "It is vital that the economic revolution should also acquire a similar significance."⁸

The Cuban revolution was accomplished in a country where the situation was adversely influenced by the domination of foreign monopolies and landowners, a one-sided economy, dependence on the foreign market and on fluctuations in market prices on sugar, the country's principal item of export. The mono-culture economy and the seasonal character of employment gave rise to such calamitous phenomena as chronic unemployment, food shortages, systematic economic crises and recessions in production.

After the revolution, naturally, the task was to build up an efficient and stable national economy, put an end to its mono-culture orientation and change over to industrialisation. In practice, however, it did not prove simple to achieve these goals quickly on account of the general weakness of the economic mechanism inherited from the days of colonial and imperialist rule and of the considerable shortage of skilled workers and technicians. Besides, when Cuba started the building of socialism the external political conditions were extremely difficult. Subjected to an economic and political blockade by US imperialism and to ceaseless provocations and subversion by hostile, counter-revolutionary forces, Cuba had to divert considerable manpower and material resources for defence, to maintain a large army, enforce unremitting vigilance and keep the people in a state of constant mobilisation.

This brought the Cuban leaders to the conclusion that at that time the promotion of agriculture, chiefly its export branches (sugar, tobacco, fruit, livestock-breeding), and some industries, notably the nickel industry, which likewise exported its output, should be the basis for the country's economic development. In this way Cuba had to create the accumulations needed for subsequent industrialisation and deep-going structural modifications in her economy. Under these conditions the sugar industry remained the principal branch of the economy for a fairly long period. However, the socio-economic content of its specific role in production underwent a substantial change: it became one of the principal sources of socialist accumulation. Moreover, the possibilities that were being opened for Cuba by active and diversified cooperation with other socialist countries, by its participation in the international socialist division of labour were taken into account as a matter of course.

In the building up of a socialist economy considerable importance has been, and still is, attached to the ideological mobilisation of the

people, to the fostering of labour enthusiasm and political consciousness, to the provision of moral incentives for work. While these factors were accentuated, there was initially a striving to restrict the role played in society and production by commodity-money relations, cost accounting categories and individual material incentives. But life showed that it was necessary to improve the methods of socialist economic management and to make wider use of economic factors, cost accounting and other categories inherent in the socialist stage of development. Fidel Castro noted that it was important to take into account the distinctions existing between the lower and the higher stage of the communist socio-economic formation. "Today," he said in 1971, "we are at the socialist stage of the revolution and not at the communist stage, which we will achieve as a result of what we are doing today. We therefore cannot behave as though we have already achieved communism... We want to achieve communism as soon as possible, but in the meantime we are building socialism."⁹

Let us briefly examine the trends and forms of the further building of the material and technical basis of socialism in Cuba.

The main factor of progress, common to all countries, building socialism, is the growth of labour productivity. This is achieved through the introduction of new technology into industry, the mechanisation of all farm work and the application of advanced, scientific methods of agronomy. In Cuba the maximum enhancement of labour productivity has been declared as the central national task.

The conditions for running the economy efficiently are the correct application of the objective economic laws of socialism, the use of the enormous internal reserves and potentialities of socialist production, an improvement of the system of management, accounting and control, and of the organisation of labour and distribution. In Cuba there has been notable progress towards meeting these conditions. The Leninist tenet that socialism should be built not solely on enthusiasm, but with the aid of enthusiasm, through the harmonious combination of material and moral incentives, of all the economic categories of socialism, is inevitably clearing the road for itself.

In this context the economic training of leading scientific and technical personnel, the mastering by them of the fundamentals of socialist economic management, is becoming one of the principal tasks. This work has been started and is acquiring a national scale. It is stressed that labour productivity is the decisive factor of social progress and of the growth of the living standard, and that to this end it is necessary to learn to take economic indicators into account and utilise them correctly in practice. In parallel, factory and office workers are studying at vocational schools full-time or without discontinuing their work. Many hundreds of students and specialists are receiving training or doing their practical work in fraternal socialist countries. In short, the economic training of managers and workers is acquiring the significance of a vital link in the building of socialism.

The Communist Party and the Revolutionary Government are devoting much of their energy to improve the very organisation of labour processes. Since September 1970 a campaign has been under

way to introduce output rates in industry and agriculture. The existing system of wage rates is being replaced by a system that more fully takes into account the individual contribution of each worker to production, his qualification rating and the intensity and duration of his labour. At factories commissions consisting of managers, representatives of the Communist Party and the trade unions, specialists and workers have been set up to work out production rates and also steps to improve labour organisation and utilise proposals for enhancing production efficiency. The recommendations made by these commissions are considered and approved at general meetings of the employees of the given enterprise. Courses have been organised for the training of rate setters and other specialists in labour organisation. The new system of rate setting is now in operation at 21,000 enterprises employing over 1,100,000 people.

Alongside moral incentives wider use is now being made in Cuba of material incentives, notably priority distribution of housing and durables for foremost workers. Thus, one of the pivotal principles of socialism, namely, control of the measure of labour and of the measure of consumption, is being more fully applied.

Further, considerable attention is being given to the rational and efficient use of all the reserves and potentialities of production, to reducing idle time and loss of working time, to implementing a policy of economy, to drawing more people from among the non-working able-bodied categories of the population into industry. In March 1971, following a broad discussion in which over 3,000,000 factory and office workers took part, a law was passed against idlers. This law reinforces labour discipline with measures bringing to bear moral, administrative and material influence. The work-books that have been issued likewise permit making a more objective and accurate assessment of the labour contribution of every worker.

Great importance is at present attached to restoring the role of economic accounting. Cuba, Osvaldo Dorticos wrote recently, "cannot hope to develop if she ignores the need to bend every effort, which means, above all, the maximum utilisation of material resources and this, in turn, requires the most effective and rigorous economic and financial discipline, the best and uncompromising forms of control of the utilisation of our economic resources"¹⁰ Accordingly, in January 1973, a new system of economic accounting with indicators such as cost price, expenditure of materials and labour, and so on was introduced in Cuba.

Measures are being currently worked out to achieve a fundamental improvement of the system of economic planning. Until recently there were branch plans (for sugar, livestock, rice, coffee, citrus, and so on) and also annual plans. Work has been completed on a three-year economic development plan, and preparations are being made for working out a five-year plan for 1976-1980. In capital construction the accent has been placed on completing the projects now under construction, modernising existing enterprises, and making more efficient use of operating equipment. The task has been set of planning in realistic, scientific terms with due regard for the extensive

experience accumulated by the socialist countries and with a more comprehensive application of the economic laws of socialism.

Much attention continues to be given to achieving a further strengthening of the Party and state apparatus and improving the forms and methods of its work. A major development was the reorganisation of the Council of Ministers in November 1972. The Council of Ministers now has a new organ, the Executive Committee, consisting of the Prime Minister, the First Deputy Prime Minister, the President of the Republic and seven Deputy Prime Ministers. The members of the Executive Committee have been placed directly in charge of definite groups of ministries and departments, whose status has been precisely demarcated: 27 of them are directly in the Council of Ministers, and 17 operate under the Council of Ministers.

Councils consisting of the heads of local organs of ministries and departments have been formed in the provinces. Each of these councils, whose job is to coordinate the work of these bodies, has an executive committee. The councils facilitate the fulfilment of production plans and of the instructions and directives of the central organs and of the Prime Minister and his deputies. The work of the councils is guided by the first secretaries of the provincial committees of the Party or the authorised representatives of the Political Bureau in the provinces where they have been set up.

The latest results of economic activity indicate that the steps taken by the Central Committee of the Communist Party and by the Revolutionary Government to enhance production efficiency have been correct and are beginning to yield fruit. In 1972 the gross national product increased by 10 per cent over the preceding year. Considering the objective difficulties in Cuba's economy this is an extremely high index.

Substantial headway has been made in all the key areas of socialist production and this is enabling Cuba to achieve a higher rate of development in branches of the economy that directly raise the living standard. A record level of output was recorded in 1972, for instance, by the light industry, especially by such branches as the production of knitwear, textiles, leather and shoes. Housing construction by micro-teams of voluntary builders working without prejudice to their main jobs is becoming widespread. There has been a considerable increase (15 per cent) in the procurement of farm produce. The cultural, medical, communal and transport services are being steadily improved and enlarged.

IV

As the Cuban leaders have pointed out time and again, successful socialist construction would not have been possible without massive support from the Soviet Union, other socialist countries and the international communist and national-liberation movements.

Everybody knows the part that has been played by the Soviet Union and other socialist countries in strengthening Cuba's defence

capability. The diplomatic support of the socialist community, of which Cuba is a full-fledged member, has gone a long way toward creating favourable international conditions for the building of socialism in Cuba. "Socialist Cuba," L. I. Brezhnev, General Secretary of the CPSU Central Committee, said in a speech in the Kremlin on June 27, 1972, "is not alone. She is solidly a member of the world socialist system. Her international positions, interests and security are reliably safeguarded not only by the firm policy of the Communist Party of Cuba and the heroism of her revolutionary people but also by the support and political weight of the USSR and other countries of the socialist community. We have stated this before and, with a full sense of responsibility, we repeat it today."¹¹

For her part, Cuba pursues a foreign policy aimed at the utmost promotion of friendship and cooperation with other socialist countries, with all progressive, anti-imperialist forces. The coordination of her policies with those of the Soviet Union and other socialist countries and her achievements in the building of socialism are enhancing her international prestige and giving her a stronger position in the world scene. This has been demonstrated, notably, by the failure of the imperialist policy of isolating her in Latin America. Lately, she has restored diplomatic relations with seven Latin American states, while with some of them these have become relations of close friendship and they significantly influence the overall political climate in that part of the world. The movement for normal relations with Cuba continues to grow in Latin America. This has been strikingly demonstrated at the UN Security Council's session in Panama in March 1973 and at a number of Latin American forums in 1972: the meeting of the UN Economic Commission for Latin America in Quito, the meeting of the OAS General Assembly in Washington and the 2nd Consultative Conference of Ministers of Power Engineering and the Oil Industry in Quito.

The fulfilment of Cuba's economic plans and the successful functioning of her economic mechanism are closely linked with the development of her economic cooperation with fraternal socialist states, which account for nearly 80 per cent of her foreign trade. The USSR and other socialist countries guarantee Cuba a stable and reliable market for her main product free of violent price fluctuations on the world market. For their part, they supply her with the new machinery needed for her economic development and also with raw materials, fuel and some foodstuffs, and grant her credits running into hundreds of millions of roubles.

Scientific and technical cooperation with other socialist countries is also of considerable importance to Cuba. This cooperation enables her to obtain sophisticated machinery and successfully resolve the problem of training specialists for all branches of her national economy. On the whole, Cuba's cooperation with socialist countries gives her the possibility of saving resources and time in carrying out her economic development plans.

The character of Cuba's close cooperation with other socialist countries is fundamentally new, differing entirely from the relations

that she had had with the USA. Replying to the assertions that after the revolution there had "only been a change of metropolises", Carlos Rafael Rodriguez, member of the Secretariat of the Central Committee of the Communist Party of Cuba and Deputy Prime Minister of the Revolutionary Government, pointed out that a typically neocolonial process was witnessed when Cuba was dependent on the USA: the island was turned into a supplier of sugar for the United States market, while the revenues of the sugar industry flowed to the USA and what was left behind was not used for development. "Today," he said, "the situation is entirely different. What do we import from the USSR? We import foodstuffs and durables for the population. Also, we import in considerable proportions entire factories and complete sets of equipment for the development of our economy. The credits we receive from the USSR are not concentrated in the sugar industry; they are used for the diversification of our economy. The economic relations between the socialist countries and Cuba are thus oriented not towards maintaining the old structural basis of the Cuban economy but towards transforming it in the direction of development."¹²

Cuba's widening participation in the international socialist division of labour is one of the major factors of her successful socialist construction. Her entry into the Council for Mutual Economic Assistance in July 1972, the logical continuation of the development of her economic relations with the socialist countries, opens for her broader vistas in this sphere. While facilitating socialist construction in Cuba, this step by the Cuban Government is aimed at helping to achieve closer unity in the socialist community and to foster the consolidation of the world socialist system.

Friendship and cooperation between Cuba and the Soviet Union are steadily growing stronger. Fidel Castro's visit to the Soviet Union in June-July 1972 and the talks that were held during that visit were a large contribution toward the expansion and consolidation of fraternal relations between the CPSU and the Communist Party of Cuba and between the USSR and the Republic of Cuba. The growing political unity between Cuba and the Soviet Union was shown also by the participation of a top-level Cuban delegation led by Fidel Castro in the celebrations of the 50th anniversary of the USSR in December 1972.

Broad economic cooperation between the two countries is founded on this unity. A Soviet-Cuban inter-government Commission for Economic, Scientific and Technical Cooperation has been set up and is functioning successfully. Close cooperation has been established between the planning bodies of the two countries.

The USSR has for many years been Cuba's major trading partner, accounting for more than half of her foreign trade. Supplies from the Soviet Union entirely or almost entirely meet Cuba's requirements in petroleum and oil-products, ferrous and non-ferrous metal rolled stock, lathes, motor vehicles, farm machinery, cotton and grain. In return Cuba exports her goods to the Soviet Union. The Soviet Union helps Cuba to develop key branches of her economy: the sugar industry, power engineering, geology, agriculture, metallurgy, chemis-

try, the fishing industry and transport. By the close of 1972, with Soviet economic and technical assistance, Cuba had built or was building or modernising 161 industrial enterprises and other projects. Hundreds of Soviet specialists are training Cubans to handle modern equipment and organise production. Moreover, large numbers of Cubans are studying at institutions of higher learning in the Soviet Union.

An important step in the further development of Soviet-Cuban economic cooperation was the signing, in December 1972, of agreements on Soviet assistance to Cuba in the promotion of a number of her basic industries, transport and agriculture, on the terms for the use and the further extension of Soviet credits, on reciprocal deliveries of goods and on the payment for these goods. These, Fidel Castro said, are extremely important agreements. They inspire and stimulate the Cuban people in their labour effort. "The relations between Cuba and the USSR," he declared in a speech broadcast in January 1973 over the national television and radio network, "will go down in history as a model of revolutionary relations between the two countries, of relations that are truly revolutionary and internationalist."¹³

The relations between the CPSU and the Communist Party of Cuba are growing ever closer. Regular exchanges of delegations with the purpose of studying the experience of Party work in various areas of socialist and communist construction is enriching the two parties. These exchanges enable them to use what they feel is most valuable to them in this experience. Moreover, this direct study helps to ascertain the specific conditions of the building of socialism in each country and thereby foster understanding, which is a key prerequisite for fruitful cooperation. Active contacts are maintained between the youth and trade-union organisations of the two countries, the local Soviets of Working People's Deputies in the USSR and the Committees for the Defence of the Revolution in Cuba, women's organisations, creative associations and so on.

Friendship between the Soviet and Cuban peoples has withstood the test of time. It is durable and unbreakable and will grow stronger still for the good of the people of the two countries, which are true to the ideals of socialist internationalism.

NOTES

¹ *El Futuro es el internacionalismo. Recorrido del comandante Fidel Castro por países de Africa y Europa socialista 3 de mayo-5 de julio de 1972.* Instituto Cubano del Libro, Havana, Cuba, 1972, p. 431.

² V. I. Lenin, *Collected Works*, Moscow, Vol. 31, pp. 44-45.

³ *Cuba-Chile. Encuentro simbólico entre los procesos históricos. Ed. políticas.* Comisión de Orientación Revolucionaria del Comité Central del Partido Comunista de Cuba, Havana, 1972, p. 524.

⁴ V. I. Lenin, *Collected Works*, Moscow, Vol. 30, p. 162.

⁵ Fidel Castro, *XVII Aniversario del asalto al Cuartel Moncada, 26 de julio de 1970.* Ed. COR, No. 11, 1970, p. 35.

⁶ *Cuba-Chile*, op. cit., p. 270.

⁷ *El Futuro*, op. cit., p. 459.

⁸ "Intervención del dr. Osvaldo Dorticos Torrado en el Encuentro Nacional de Organización y Normación del Trabajo de la CTC, 23 de enero de 1972," *Economía y Desarrollo*, Havana, No. 11, May-June, 1972, p. 49.

⁹ Discurso pronunciado por el Comandante Fidel Castro Ruz, Primer Secretario del Partido Comunista de Cuba y Primer Ministro del Gobierno Revolucionario, en el acto central por el Primero de Mayo. Teatro de la CTC, Primero de Mayo de 1971, Ed. COR, No. 3, 1971, p. 42.

¹⁰ Dr. Osvaldo Dorticos, "Control económico y normación: Tareas de primer orden", *Economía y Desarrollo*, Havana, No. 11, May-June 1972, pp. 25-26.

¹¹ *Pravda*, July 28, 1972.

¹² "En el proceso de construcción del socialismo la política debe tener prioridad," *Economía y Desarrollo*, Havana, No. 14, 1972, p. 154.

¹³ *Bohemia*, Havana, No. 2, 1973, p. 44.

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Stage and Regional Study of Bourgeois Revolutions in Europe in the 16th-18th Centuries

The history of bourgeois revolutions is studied from diametrically opposite positions in Marxist-Leninist and bourgeois historiography. The more the bourgeoisie lost its former revolutionism the more strongly its attitude and that of its historians changed not only to the revolutionary movements of their times but also to the bourgeois revolutions of the past.

This tendency of the bourgeoisie to debunk its revolutionary past has been repeatedly noted by Marxist historians, particularly by the authors of one of the latest Marxist works on the history of revolutions published in the German Democratic Republic in 1969.¹

Characterising this tendency, one of its authors, French historian A. Soboul emphasises that by artificially belittling the importance and role of the Great French Bourgeois Revolution of the 18th century (just as of other earlier bourgeois revolutions), by denying its economic, social and national content and portraying in a mythical way its great accomplishments and gains, the proponents of this trend try "to reduce to naught the half-century revolutionary historiography from Jean Jaurès to Georges Lefebvre".² In the prewar and postwar years the debunking of the early bourgeois revolutions has become particularly fashionable among such historians as G. Davis, G. Clark, P. Geyl, G. Renier, A. Cobban, J. Godechat, R. Palmer, J. Smit and others.³

The tendency to belittle the historical role and deny the socio-economic content of the 17th-century bourgeois revolution in England was clearly evident in the papers by S. Skalweit ("France and the Constitutional Conflict in England in the 17th Century") and N. Steensgaard ("Characteristic Features of the Economic and Political Crisis in the 17th Century") read at the 13th International Congress of Historical Sciences in Moscow. The same tendency as regards the history of the Civil War in the United States is noted by Herbert Aptheker, an American scholar, who emphasises that the greater part of modern American historiography devoted to this question is steeped in more or less pronounced sympathies for the Southern Confederates and racist prejudices in respect to the Negro population of the USA.⁴

Marxist-Leninist historical science continues, on the basis of the principles of historical materialism, to make profound study of the history of bourgeois revolutions, their general laws and national-state features, examining revolutions as an essential objective stage in the transition from feudalism to capitalism.

A vast literature treats of these problems which for all that has not yet exhausted the possibilities of further concrete studies and their Marxist-Leninist theoretical generalisation. In most of these works the history of revolutions is analysed and synthesised in a national context, by countries. A much smaller number of works examines the problem of bourgeois revolutions in the comparative historical aspect. And there are even fewer researches in which bourgeois revolutions are examined as an organic part of the global, comprehensive process of the origin, revolutionary emergence and development of capitalism as a formation, as a system; works in which the general laws of these revolutions are studied in dialectical unity and the interaction of the system and its component parts, the general and the particular, the international and national, in their movement and development, succession of forms, phases and stages.

In this context it is necessary once again to refer to the earlier mentioned work *Studien über die Revolution*.

This is one of the latest Marxist works which to a certain extent sums up the studies of the history of different revolutions. But here, too, most of the essays are characterised not by an analysis but by a simple comparison of revolutions which occurred in different historical conditions in some or other countries, at different degrees of capitalism's maturity (chiefly in the sense of accumulation of quantitative changes) in the given countries. Thus, V. Alexeyev-Popov, comparing the experience of the French revolution at the end of the 18th century and the 1905-1907 Russian revolution and noting the difference in the historical conditions in these countries, does not, however, raise the question on a broader plane as regards the qualitatively distinctive laws of bourgeois revolutions at the imperialist stage of capitalism. M. Kossok (GDR), comparing the revolutions of 1808-1814 and 1820-1823 in Spain and of 1820 in Portugal with the Latin American national-liberation revolutions in the first third of the 19th century and placing them in a special "Iberian" cycle, pays main attention to ascertaining the influence exerted on them by the great French Bourgeois Revolution as an external factor. In the case of Schebitz (GDR) the comparative historical method of studying the bourgeois revolutions of the 16th to 18th centuries acquires a utilitarian character; the comparative method, he asserts, helps us understand more correctly the historical place of "Revolution No. 1"—the Reformation and the Peasants' War in Germany in the first quarter of the 16th century.

A. Soboul approaches closer than all the others the stage-and-regional study principle. He points out in his well-grounded article, which abounds in observations and conclusions, that in the final analysis it is not the greatness of the French Revolution and the response it evoked but "the expansion of capitalism itself which is aggrandising by nature" that ensured its universal establishment.⁵ This highly fruitful thought, however, did not become the cornerstone of the said study.⁶

The *Studien über die Revolution* is indisputably a scientifically valuable and useful work. But the possibilities of both the comparati-

ve historical method as a whole and of its stage-and-regional aspect in particular have not been utilised sufficiently in it. It is this aspect of the question (and only it) that we shall discuss.

Factors of a socio-economic order played a determining part in shaping the prerequisites for the bourgeois revolutions in the period of capitalism's manufactory stage, namely, the rise, introduction and development of bourgeois forms of production, exchange and distribution and also of their vehicles in society—the classes of the bourgeoisie and the proletariat.

In contrast to such socio-economic formations as slavery and feudalism (with their slow or stagnant development, inability in relatively brief periods to spread their own distinctive mode of production throughout the world, with a great ability at the same time to coexist in a way with other economic structures, for example, the feudal and the bourgeois), capitalism with its law of extended reproduction is very dynamic and possesses greater ability to subordinate to itself the economic categories of preceding formations in all spheres.

In landownership, as Marx emphasised, capitalism transforms all pre-capitalist forms of landed property—feudal, clan and small-peasant holdings, converting them "into the economic form corresponding to the requirements of this mode of production".⁷ In industry, even in the manufactory period, not to speak already of the factory period, the sale of output proceeds not only and at times not so much in the national market as in the world market.⁸ It is this market that became the chief price- and exchange rate-forming centre and in this way subordinated to itself pre-capitalist societies and spheres of production. The world market opened in the 16th century, as Marx wrote, "the modern history of capital".⁹ It stimulated the genesis and development of the colonial system, ensured the redistribution of the national product of all countries in the interest of the capitalists in the states which became the pioneers and leaders of bourgeois development.

On the strength of these circumstances we assume that the general laws of development acquired greater significance for capitalism, as compared with pre-capitalist formations, and had a greater impact on it. Moreover, the role of these general laws increased (as a world capitalist system took shape and made the transition from earlier to more mature and developed stages) to the detriment of that played by local, national and regional laws. It is Marxism-Leninism as a whole and the Marxist-Leninist doctrine of socio-economic formations in particular that made it possible for the first time ever to study on a scientific basis the diverse and all-sided connections of one or another formation (system) with its component parts. The correlation between the world capitalist system and its parts and countries drawn into the orbit of its influence is not equivalent either to migrations, direct receptions, mechanical borrowings, external influences and affiliations, or to primitivised autochthony elevated into an absolute. This is the dialectical unity of the world process as a whole, of the general and its national, local and regional manifestations as the specific, singular, particular.

Thus, the stage-and-regional method of study includes: 1. Ascertaining the initial general content and form of the historical process, phenomenon, system—in the given case the world capitalist system and its revolutionary emergence and subsequent development; 2. Determining the scale of deformations of the original content and form depending on (a) regularities, at different stages, of the emergence and development of the examined system in time and space; (b) the complex of internal development factors of the given countries, regions; (c) external (in relation to the given countries, or region) factors of the system, in particular, the existence of more or less developed forms of bourgeois relations; (d) interaction of the system with its component parts drawn into the sphere of its influence (countries, regions). Moreover, as time passes by factors of a formative, systems order more and more define the main content of stage-and-regional deformations, while national and regional factors more and more determine the form of these deformations, their specific features, the place and time of the origin of revolutions, and so on. The degree of the stage-and-regional deformations is directly linked with the duration of the stage and chronological gap with which some or other countries and regions embark on the path of bourgeois development and bourgeois revolutions. It is also necessary to take into account, as a constantly operating factor, the level of disintegration of pre-capitalist reforms and the degree of their stability.

The stage-and-region category implies a group of countries, geographically united in one complex or territorially scattered but with a common type of the basic laws governing the development of the historical process in them (in the given case the emergence and development of capitalism) or with a common type of deformation of this process. The stage-and-region category is historical and it varies both in time and space.

For the 16th-18th centuries the problem of the stage-and-regional comparative method is specified as the correlation of the general laws governing the development of capitalism's manufactory stage in its two phases (the 16th to the mid-17th and the mid-17th-18th centuries) and the socio-economic, political, and ideological development of the advanced European countries.

Let us now examine some of the general laws of this stage important for our exposition of the question. Let us recall that Marx saw its specific features (with certain nuances for the second phase) above all in the predominance of merchant's capital. Merchant's capital acted at that time not in the form of capital "with a special function", as it figures in developed bourgeois society, but still continued its existence in the form of a separate part of capital, whose independent development "stands in inverse proportion to the general economic development of society".¹⁰ And this economic conservatism of merchant's capital was not a tribute to the times but was its organic feature also preserved in conditions of the factory stage of capitalism.¹¹

Within the bounds of the manufactory stage the victory of bourgeois development was objectively ensured only locally, on the

scale of individual countries and not on a general European or world scale. And even these successes were achieved by these countries utilising at first continental resources and, subsequently, also through the colonial exploitation by them of newly discovered lands. From this followed the necessity for countries developing along the capitalist path to gain dominance in the shaping world market because only this ensured them a faster rate and a higher level of bourgeois development as compared with other European states and also (at times temporary) industrial superiority. A major distinctive feature was the absence throughout the entire manufactory stage not only of a world, but even European system of capitalism. It was still in its embryo and its laws, as it were, consisted of a sum of national variants. It is this that determined the higher share of factors and regularities of a national-local character. The West European region was also in the process of formation at that stage.

Corresponding to the immaturity of bourgeois economic development was also the immaturity of the emerging main classes of future bourgeois society, the bourgeoisie and the proletariat, although the degree of this immaturity was not the same for both classes. While the bourgeoisie gradually, with different complications, developed into a "class for itself", the incipient proletariat throughout the entire manufactory stage took shape only as a "class in itself". The class antagonism between the proletariat and the bourgeoisie existed in embryonic form and was expressed in individual spontaneous outbursts. The system of wage labour constituted a kind of positive antithesis to the feudal form of exploitation which continued to prevail, and the struggle was waged over the terms of hire; even the most developed English proletariat in the period of the industrial revolution was opposed to the machines as such as not to their capitalist application.¹² Progressive forms of ideology, too, remained immature. Almost up to the end of the 18th century they were vested in a theological form of different reformation doctrines (Lutheranism, Calvinism) and revolutionary sectarian trends.

Notwithstanding the immaturity of the objective and subjective factors, it is precisely in the manufactory stage that bourgeois revolutions took place for the purpose of introducing bourgeois forms of production and capturing political power. The reason for this was rooted in the absence at that time of an alternative—reform or revolution. The question was, either the victory of the bourgeois system or the triumph of feudal reaction, the long vegetation or the destruction of the shoots of capitalism in one or another country and even in a region. In other words, it was a question of an irreversible or reversible variant of capitalism's development.¹³

The sum total of all these circumstances made the bourgeoisie of the manufactory stage revolutionary and facilitated its exercise of hegemony in the revolutions of the 16th-18th centuries, although in this role the bourgeoisie as an exploiting class by nature, acted cautiously and did not go to the end. During the first and the second phase the degrees of its inconsistency were not the same: at first this was a result of immaturity, the lack of differentiation between the

bourgeoisie and the feudal estates; in the end this inconsistency was determined by the ever sharper class struggle waged by the emerging proletariat.

Among the specific features of the first phase of the manufactory stage which laid their imprint on the character of the first bourgeois revolutions (the Reformation and the Peasants' War in Germany and the Netherlands revolution in the 16th century), mention should be made of the absolute predominance of merchant's capital over industrial, the absolute predominance of theological concepts in progressive forms of ideology; the absence not only of an all-European system of capitalism but also of capitalist states; the immaturity and poor development of early capitalism in general.

The national features of the prerequisites for "Revolution No. 1" in the German states, connected with the specifics of that stage, were the incompleteness of the formation of a national centralised state; the weakness of the political and economic ties between the different states and the imperial cities, which gave rise to conflicting situations; the local character of the sets of early capitalist development and foreign trade ties (the existence of only a tendency towards the shaping of a world market); the immaturity of the objective and subjective factors and the earlier, than could be expected, socio-political explosion caused by the economic and political domination of the Catholic church.

The sum total of all these "systems" and "national" factors, led (notwithstanding the wide scale and radical nature of the programmes of the peasant movement which is part of the treasure-house of the revolutionary traditions of the German people) to the defeat of the radical trend in the Reformation movement and the Peasants' War, to the victory of the feudal reactionary forces, or, in other words, engendered a reversible variant of capitalism's origin. For it is not simply a definite quantitative level of bourgeois development but only its form which possesses the attribute of an irreversible forward movement that leads to a potentially successful bourgeois revolution. This means that in a given country capitalism won on a national scale such strong economic and social positions that the factors reproducing it gained the upper hand over the factors which reproduce the feudal basis, and the irreversible forward movement was no longer under the control of the political superstructure of feudal society and its attempts to reverse capitalist development caused a political crisis, a revolutionary situation and, as a consequence, a successful bourgeois revolution of one or another type. The victory of such a revolution at the manufactory stage is the truest criterion of the irreversible type of capitalism's development in the given country.

Such a variant of development did not exist in the German states at the end of the 15th and the first quarter of the 16th century. And this aspect must be considered in ascertaining the reasons for the failures of the Reformation and the Peasants' War. The contribution made by the Reformation to the European process of capitalism's growth and its revolutionary development related chiefly to the sphere of ideology.¹⁴

It was the irreversible variant of the emergence of capitalism in the Netherlands that advanced it to the leading place among the European states. This was facilitated by the national and the comprehensive scale of development of early capitalist relations in it; the dominant position of the Netherlands in the world market which ensured her trade hegemony and (relative and temporary) industrial predominance; the greater maturity of the objective and subjective factors, as compared with the German states, the existence of a revolutionary ideology—the theological doctrine of Calvinism—which met the aspirations of the boldest part of the bourgeoisie at that time.

The Netherlands revolution also had some features which made for its kinship with "Revolution No. 1" in the German states: incompleteness of economic and state centralisation, oppression of the country by reactionary Spanish absolutism (this oppression also played a part as an accelerant in clearing the way for the revolution which broke out before the objective prerequisites for it had fully matured).

The sum total of this "stage-systems" and national factors facilitated the successful outcome of the Netherlands revolution and led to the formation of the first bourgeois state in the world—the republic of the United Provinces. The influence of the formative "systems" factor was seen in the predominant role of merchant's capital; the formation of the world market of which Antwerp was first the centre, and then Amsterdam beginning with the end of the 16th century; the existence of the revolutionary doctrine of Calvinism. A commercial and not an industrial inflationary situation was a local specific feature in the economic field,¹⁵ while in the field of politics, the weakness of the revolutionary-bourgeois wing and the political dominance of the merchant oligarchy which was conservative and cosmopolitan in its aspirations.

The latter based its policy on preserving the Amsterdam staple commodity market without any changes and on an alliance with the feudal nobility, and not with the peasantry and the plebs. The personification of this alliance was Orangism, while its political costs were orientation on foreign intervention up to the end of the 16th century and oligarchic routine in the 17th century. Correspondingly, the agrarian question was also solved in a half-hearted way. Only the lands of the noblemen emigres and the Church were confiscated and gradually sold. The seigniorial system, even all the liegrants of Philip II, remained in force. Small peasant households of different types remained the basis of the agrarian system. Bourgeois-farmstead relations developed slowly and primarily on polders, the newly-drained lands. All these factors determined the victory of the revolution only in the North; the limited nature of its historical significance led to subsequent stagnation, military defeats and the slipping down of the republic to the status of a third-rate European power.

In the stage-typical aspect both revolutions, in Germany and in the Netherlands (the first for its objective tendencies and the second also in practice) were above all revolutions of a transformatory type; they determined (the first as a prospect and the second as an aim) the

establishment of capitalist forms of production relations and the advent of the bourgeoisie to power, i. e., signified the revolutionary transition from the feudal to the capitalist formation. The first suffered defeat, the second accomplished these tasks partially and inconsistently. Both were spontaneous in the sense that they were not influenced by more developed capitalist forms. Both in a way were speeded up, for owing to external oppression, they began before the objective and subjective factors had sufficiently matured. But this liberatory accent and the religious shell of the movements blunted, to a certain extent, the acuteness of the socio-economic and political contradictions, diverting them into the channel of religious and liberation struggle.

These circumstances were most distinctly evident in the Netherlands where the revolutionary mass movement gained in strength only in individual critical periods (1566, 1572, 1578-1583) and mainly in the large cities. It did not produce leaders even of a provincial scale, let alone of a national scale; it hardly affected the peasantry and did not lay a democratic imprint on the ultimate results of the revolution. In the sphere of state law the Netherlands created a bourgeois-republican form of government, while in the economic sphere—a highly developed merchantile marine and a financial and credit system, bringing to veritable hypertrophy the prevalence of merchant's capital in which this cardinal feature of the first phase of the manufactory period was focussed. Such was the contribution of the Netherlands revolution and the Republic of the United Provinces to the development of capitalism and the world revolutionary process and at the same time also to the type of "national-stage" synthesis which summed up the first rather than opened the historical perspective for the second phase of the manufactory period. It is here perhaps that we have the root cause why the Netherlands revolution did not acquire international significance and did not express the requirements of the social order of those days.

The revolutions of the second phase of the manufactory period—the English bourgeois revolution in the 17th century and the French bourgeois revolution at the end of the 18th century—already proceeded in different conditions. They were not similar, having been engendered by different factors, although the primary cause was the same—the gradually progressing development of capitalism and the disintegration of feudalism.

The course toward consolidating feudal reaction, embarked upon already in the second half of the 16th century, was a negative factor. In Central and Eastern Europe its victory was complete and was embodied in the gradual introduction of a kind of second edition of serfdom. In the Mediterranean region tendencies to suppress the shoots of capitalism, towards political and ideological reaction in the form of a counter-Reformation, prevailed. Such was the response of feudalism, where it still had a preponderance of forces, to the threat of capitalism's development. In the West European region, however, capitalist development proceeded so swiftly that a similar direct attack was extremely difficult. Here feudal reaction advanced not in a solid

front but with scattered forces, not at once in all spheres but in parts. With the ever-growing rigidity in the policy of absolutism with respect to developing capitalism in countries where its threat to the foundations of the feudal system was becoming obvious, the feudal state resorted to manoeuvring, to playing in reforms, to "enlightenment" and so on, which formed the basis of the policy known as enlightened absolutism.

But it is not the negative factors that were decisive and dominated the European arena in the 17th century. Early capitalism continued the offensive, effecting simultaneously an internal reconstruction. Among major phenomena of this kind were: a) the increase in the share of industrial capital (although the prevalence of merchant's capital on the whole was still preserved) in the second half of the 17th and in the 18th century, accompanied by the rise in some countries (England) of an inflationary situation in production; b) tendency to replace the structure of the Amsterdam staple commodity market (based on attracting the entire mass of commodities to the "Amsterdam zone" with subsequent redistribution and transportation to places of consumption) by another structure under which the main mass of commodities was transported from the centres of their production to the consumers directly or via other big centres (Hamburg, Amsterdam). The system of monopoly colonial trading companies, one of the bastions of the commercial might of the Netherlands, outlived itself too. It is these (and some other) factors that gradually created the conditions for the victory of industrial capital over merchant's capital. Locally, these tendencies were consolidated in England, although they expressed the immediate prospects on an all-European scale.

In England the ever growing scale of multi-sectoral manufactory production, the mining industry and trade, the development of capitalist enterprise in agriculture not only greatly reinforced the positions of the bourgeoisie and bourgeois property but also led to the bourgeoisification of a wide and economically strong stratum of the middle and petty nobility, the gentry. And this, besides socio-economic consequences, engendered political ones—prepared the ground for a bloc of the English bourgeoisie and the new nobility: the hegemony of this bloc determined the course, content and forms of the English revolution. This variant of capitalist development proved irreversible and rid itself of the control of English absolutism; the attempt to reverse development led to a political crisis and the victorious English revolution, of which the peasantry was the most important driving force.

Here what was in common with the Netherlands revolution were the religious-ideological shell of the movement (Calvinism) and the alliance of the bourgeoisie with the nobility, but with important qualitative differences. In the Republic of the United Provinces Calvinism had already undergone an evolution which greatly discredited it—from an ideological banner and the organising force of the revolution, through the "headquarters" of the uninfluential opposition, to the official governmental church. In England Puritanism laid bare its money-grubbing, class exploiting essence and made itself vulnera-

ble to criticism both from the left and from the right; it exhausted the revolutionary possibilities of religious forms of ideology and lost the possibility of playing the role of ideological leader in the coming revolutions. The essence and the consequences of the alliance of the English bourgeoisie with the bourgeoisified new nobility were also different. This alliance resulted in such a radical agrarian revolution that all obstacles to capitalist production in agriculture were ruthlessly torn down. It is England that became the classical country of agrarian capitalism and towards the end of the 18th century she no longer had a peasantry.

Having consolidated and swiftly advanced during and after the revolution bourgeois forms in the sphere of industry, trade and credit, England secured dominance in the world market, modified its structure and by a series of trading wars crushed the commercial and naval might of her rival—the Dutch Republic. This was an expression, according to Marx, of the subordination of merchant's capital to industrial capital.¹⁶ This is how one of the main tasks of the second phase of the manufactory stage was realised historically. (Nevertheless, for the Dutch Republic which by then had entered the phase of all-round decline this was not a reversible type of the genesis and development of capitalism. This was merely a change of leadership, the cost of which naturally was borne by the defeated side that made its contribution to the "Glorious Revolution" of 1688, gave England a new dynasty but at the same time became her satellite and obedient creditor.)

These and subsequent events led to new serious changes in the general situation at the end of the 18th century when France's turn came to embark on her own bourgeois revolution. The most important of these changes were: 1) the appearance in Europe of two bourgeois countries (the Dutch Republic and England), the formation of a bourgeois republic in the United States, the successes of capitalist development in other countries—all these developments in their sum total brought nearer the formation of a world capitalist system; 2) the industrial revolution in England which created a material and technical basis adequate for capitalism (that is, the main requisite for its transition to the new, factory stage) and thus facilitated the emergence of real preconditions for converting capitalism's development into an irreversible process on an all-European scale and of a determining nature on a world scale; 3) the achievements in physics and mechanics laid the scientific foundation for machine-based production; 4) exhaustion of the revolutionary possibilities of religious forms and the successes of the secular forms of progressive ideology. The bourgeoisie could now express its economic, social, political and other demands without disguising them in the language of the Bible and theological doctrines, and in drawing up its programmes and constitutions it could rely on the rich arsenal of numerous philosophical, legal, political, social and publicist essays written by the galaxy of such outstanding thinkers as Hobbes and Locke, Condorcet and Jean-Jacques Rousseau, Diderot and Voltaire, Turgot and Smith.

It is fruitless to try to understand and explain scientifically the

content, historical significance and course of the Great French Bourgeois Revolution without considering the influence (direct and mediated) of the enumerated and other phenomena inherent in the second phase of capitalism's manufactory stage as a whole, to look for their purely internal prerequisites. References to the supposedly higher level of the development and maturity of capitalism in France herself during the second half of the 18th century, as compared with the Netherlands in the 16th century, and England in the 17th century, are groundless. The data contained, particularly in the articles of A. Soboul, show that feudal services of peasants furnished 30 per cent of the seignioral revenues; about 90 per cent of the population were peasants (in the developed provinces of the Netherlands the urban population accounted for 35 to 50 per cent of the total population in the first half of the 16th century); merchant's capital predominated; small and middle-size enterprises prevailed in industry and the proto-proletariat was numerically small and immature.¹⁷ Nor did France hold the dominating position in the world market; she did not embark (actually before the revolution) on to the path of the industrial revolution. All these tasks were accomplished during the time of the Directorate and the Napoleonic and post-Napoleonic period.¹⁸

The dramatic and acute nature of the conflicts, the consistent revolutionary attitude in abolishing the seignioral and corporative system, absolutism, all survivals of feudalism and Catholic obscurantism, the destruction of all obstacles in the way to the victorious advance of capitalism, the radical and democratic nature of reforms in all spheres of social life, the determination of the revolutionary part of the French bourgeoisie to go to the end—all this can be understood only proceeding from a synthesis of the "stage-systems" and internal national factors. There are grounds for explaining the dramatic nature and sharp conflicts and revolutionary actions which distinguish the Great French Revolution by a combination and clash of two tendencies: 1) the greater maturity of the "systems factors" which came up close to the boundary of the emergence of the world capitalist system and the transition from the manufactory to the factory stage of capitalism (but only potentially, without crossing it as yet) and, furthermore, the faster development of the sphere of ideology and consideration of the experience of preceding revolutions; 2) the lesser maturity of the national and stage factors which existed and still operated. Among the latter were the hegemony of merchant's capital, the insufficient maturity of capitalist relations, the lack of development of class antagonisms between the proto-proletariat and the bourgeoisie, the lack of an irreversible variant of the development of capitalism and the possibility of the triumph of feudal reaction typical for the manufactory stage as a whole.

The French bourgeoisie, like the entire radical bourgeoisie of the manufactory stage as a whole, was revolutionary. It was not yet actually threatened by any broad independent proletarian movement. Moreover, the national and revolutionary traditions which originated from the numerous social battles of the 16th-18th centuries, the accumulated experience and the successes of secular ideology made

the bourgeoisie more prepared for exercising hegemony in the coming revolution called upon to accomplish tasks much broader than dictated by national conditions. Perhaps here is the answer to the question why the revolutionary part of the French bourgeoisie acted from consistently revolutionary positions, marched with the people, why the revolution itself at its climax acquired a bourgeois-democratic character which was also reflected in its final results.¹⁹

It may be assumed that the second group of factors created the prerequisites for the revolution, predetermined its explosion precisely in France and ensured the bourgeoisie hegemony in it and the accomplishment of national tasks. As for the first group of factors, they made the French bourgeois revolution complete, irreconcilable in the struggle against the remnants of feudalism and enabled it to acquire European and even worldwide significance and to accomplish general historical tasks.

But in the attempt to realise this international potential of the French revolution for selfish ends, for winning world supremacy, the élite of the Napoleonic empire and the big French bourgeoisie, intoxicated by military successes, suffered a fiasco. In contrast to the Dutch Republic, England did not yield leadership to France, preserved and consolidated her economic supremacy, entered the factory stage of capitalism sooner than France, while France tasted the bitterness not only of a military debacle but also of the restoration of the Bourbons.

This logic of the development of the bourgeois revolutions in the manufactory period (by stages and simultaneously with the prospect of the problems raised by the revolutionary introduction and development of capitalism being solved in future) was laconically and precisely formulated by Marx who wrote: "The Revolution of 1648 was the victory of the seventeenth century over the sixteenth century, the Revolution of 1789—the victory of the eighteenth century over the seventeenth century. These revolutions expressed still more the needs of the world of that day than of sectors of the world in which they occurred, of England and France."²⁰

By their type both these revolutions were transformatory and spontaneous, because a world capitalist system standing at a higher stage of development and exerting an influence on them had not taken shape as yet; the influence of the existing bourgeois countries was not so intensive as to introduce decisive qualitative changes in the course of economic development and in the nature, aims and content of the bourgeois revolution of the manufactory period. These countries themselves (except England) were still at the level of the manufactory stage and the consequences of the industrial revolution were felt to a substantial degree only later. In contrast to their predecessors in the 16th century, the revolutions of the 17th and 18th centuries were not accelerated by the operation of external factors. Both of them successfully accomplished national tasks and thereby met the requirements of the whole world at that time owing to which they acquired general historical significance. The last of them, the French, personified a classical, synthetic type of the revolution at the manufactory

stage which had reached the limit of its possibilities and stood at the threshold of transition to the next, factory stage.

Such in the most general outline is the process of the shaping of the West European stage-and-regional type of the emergence and revolutionary establishment of capitalism and the corresponding type of bourgeois revolutions in the manufactory stage.

An examination of the problem, which is the subject of this article, as applied to the factory stage of capitalism goes beyond the bounds of our task. Here it is in place to confine ourselves merely to delineate some of its general contours in order to set off the specific features of the manufactory stage more distinctly.

The entry of capitalism into the second, factory stage, the rise of a world capitalist system marked a great quantitative change in the development of capitalism. In the altered conditions, particularly in Europe, vital importance was acquired not by the problem of reversibility or irreversibility but that of the dynamics and forms of capitalist development. The victorious bourgeoisie which emerged on the world arena, according to Marx and Engels, "compels all nations; on pain of extinction, to adopt the bourgeois mode of production".²¹ And this is what happened in the countries of Central and Eastern Europe in conditions of the ever greater regulating role of the state, of absolute monarchies. They carried out from above half-hearted reforms whose purpose was to preserve as much as possible the survivals of feudalism and simultaneously create definite possibilities for the development of capitalism. In contrast to the absolute monarchies of the 16th-18th centuries, the authorities did it, fully aware of the results and consequences of such a policy.

In this historical situation the activity of the nobility and the bourgeoisie was of a different nature. The former in a number of cases acted as the initiator of bourgeois changes and itself gradually became bourgeoisified; the latter, faced with the factory proletariat crystallising into a "class for itself", in connection with the development of class antagonisms, lost the revolutionism inherent in it at the manufactory stage and sought to solve the arising problems by compromise reforms. This created the possibility for the development of capitalism not in a revolutionary but in an evolutionary way, not through the revolutionary overthrow of absolutism but its slow evolution towards a bourgeois-constitutional monarchy. It is on such or a similar basis that the stage-and-regional type of development of capitalism began to emerge in the countries of Central and Eastern Europe.

But the method of compromises and reforms, made possible by the existence of the world capitalist system, precluded neither a sharp socio-political and class struggle nor bourgeois revolutions. The working masses, all progressive social sections of the said countries were not indifferent as to the pace and forms of further social, including bourgeois, development and who would have to bear its main costs. Bourgeois revolutions at the factory stage in Europe were already different in their forms and alignment of the class forces. They decided the question not whether capitalism is to be or not to be

(it, as a rule, already existed in such countries) but how and in what forms its development would proceed, how to bring the relations of production into conformity with the achieved development of the productive forces. In the course of these revolutions also national-liberation, political tasks arose. In states of the West European region which had already gone through revolutions of the transformatory type, revolutions of the factory stage abolished the consequences of the restoration, changed the forms of the political superstructure, democratised it, placed in power some or other rival factions of the bourgeoisie. In this context it is in place to recall Lenin's well-known statement about the importance of the Great French Bourgeois Revolution for subsequent European historical development. "It did so much for the class that it served, for the bourgeoisie, that it left its imprint on the entire nineteenth century, the century which gave civilisation and culture to the whole of mankind. The great French revolutionaries served the interests of the bourgeoisie, although they did not realise it for their vision was obscured by the words 'liberty, equality and fraternity'." ²²

A major qualitative distinction of the factory-stage revolutions was that in both regions, although for different reasons, the bourgeoisie lost or was losing its former right to exercise hegemony of the revolution. The proletariat, which acted in alliance with the peasantry and other progressive sections of the population, was laying claim to this role on ever greater grounds.

All these new laws in their diversity and specific national features found clear expression in the cycle of bourgeois revolutions which developed in different European countries during the 19th century. Its culmination undoubtedly was the series of simultaneous revolutionary explosions which spread in 1848-1849 to the German and Italian states, the multinational Austrian Empire and France. More complicated and mediated (and as yet little studied) connections are characteristic of the "Iberian cycle" of the 19th-century revolutions and national liberation wars in the Latin American countries. We consider it possible to connect the latter with the stage type of the manufactory period which, however, had been considerably deformed under the influence of specific features and also the already existing and dynamically developing world system of capitalism.

Proceeding from the above, the terminological division of bourgeois revolutions into "earlier" and "later" accepted now, is, in our opinion, scientifically not justified. At times it gives rise to formal logical discussions into what category one or another revolution should be placed, the "earlier" or the "later". At the international symposium, held in Leipzig in 1969, on the subject "Classes and Ideologies in the Epoch of Revolutionary Upheavals", scholars engaged in a lively debate of the question, whether to place the Great French Bourgeois Revolution among the early, late, or specific, "classical" ones. The classification of bourgeois revolutions not according to the formal, time principle, but according to the stage principle, seems scientifically more justified, i. e., they should be

divided into revolutions of the manufactory, factory and imperialist stages of capitalism.

In conclusion we want to stress once again that the exposition of the question offered in this article is only one of the methods among others whose scientific fruitfulness has been demonstrated by Marxist researches. It can be applied with the greatest effectiveness when studying the major events on a broad chronological background. However, attempts to elevate it to an absolute, to turn it into an aim in itself and to use it in examining minor phenomena within a narrow span of time would be fruitless or lead to wrong conclusions.

NOTES

¹ *Studien über die Revolution*, Berlin, 1969. Hereafter *Studien...*

² *Ibid.*, pp. 77-78.

³ See A. Chistozvonov, "Problems of the Genesis of Capitalism (Based on the Materials of the 5th International Congress of Economic History and 13th International Congress of Historical Sciences)", *Novaya i noveishaya istoriya*, 1971, N. 4, pp. 50-51.

⁴ *Studien...*, p. 290.

⁵ *Studien...*, p. 82. See also A. Fursenko, "The American and French Revolutions of the 18th Century," *Voprosy istorii*, 1972, No. 11.

⁶ *Studien...*, pp. 68, 75, 83-85. A. Soboul looks for the reason of the radicalness of the French Revolution not in the correlation of the stages in the development of the world capitalist system and the nature of France's development but only in her specific national features: the unwillingness of the aristocracy to give up its privileges; the just as obstinate determination of the urban plebs and the peasantry to abolish those privileges; the fact that the bourgeoisie, under the pressure of the people, was forced to abolish the old regime in all spheres of society's life. Moreover, Soboul regards the bourgeoisie as an enemy of revolutionary action throughout its entire history and identifies the line of behaviour of the French bourgeoisie at the end of the 18th century with that of the Italian and German bourgeoisie in the mid-19th century.

⁷ K. Marx, *Capital*, Vol. III, Moscow, 1959, p. 603.

⁸ See V. I. Lenin, *Collected Works*, Moscow, Vol. 3, pp. 65-67.

⁹ K. Marx, *Capital*, Vol. I, Moscow, 1965, p. 146.

¹⁰ K. Marx, *Capital*, Vol. III, Moscow, 1959, pp. 322.

¹¹ See *ibid.*, pp. 318, 322. It goes without saying that merchant's capital at that time did not act exclusively in the sphere of circulation. In different forms it directly gained ownership in production: as represented by buyers-up who were also distributors, merchant-entrepreneurs who organised various manufactories, mainly of the scattered type in order to ensure a supply of commodities in big demand, to obtain additional (above merchant's) profit, and so on. But the path ran from trade (and for its sake) to production, and not vice versa, as is the case with industrial capital. Consequently, it is the merchant and not the industrialist who predominated.

¹² See K. Marx, *Capital*, Vol. I, Moscow, 1965, pp. 427-428.

¹³ This problem is specially examined in my article "The Concept and Criteria of Reversibility and Irreversibility of the Historical Process", *Voprosy istorii*, 1969, No. 5.

¹⁴ *Studien...*, pp. 42-43.

¹⁵ See H. Vander Wee, *The Growth of the Antwerp Market and the European Economy*, Vol. II, Louvain, 1963, pp. 8, 10.

¹⁶ See K. Marx, *Capital*, Vol. III, p. 328.

¹⁷ See *Studien...*, pp. 67-69, 76, 81-82; A. Soboul, "The Origin of the Industrial Working Class of Paris", *The Rise of Capitalism in Industry and Agriculture in Countries of Europe, Asia and America*, Collection of Articles, Moscow, 1968, pp. 170-175 (in Russian).

¹⁸ Soboul's attempts to accentuate the obstinate unwillingness of the French landed aristocracy and nobility to give up their privileges, opposed just as stubbornly by the determination of the peasantry and the urban plebs to wipe out these privileges seem unconvincing because such obstinacy requires an explanation of its causes.

¹⁹ See V. I. Lenin, *Collected Works*, Vol. 25, pp. 361-362.

²⁰ K. Marx and F. Engels, *Selected Works*, Vol. I, Moscow, 1969, p. 140.

²¹ *Ibid.*, p. 112.

²² V. I. Lenin, *Collected Works*, Vol. 29, pp. 371-372.

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The Concept of Level in the Language System

The last few decades have seen a burgeoning use of the term "level" in specialised and general works on linguistics, to denote both language structure (subsystems in the language set-up) and the various stages in the study of language. In this respect, the term "level" has shared the fate of many linguistic terms used both in the ontological and the heuristic, i. e., operational, meaning. The two uses of the term "level" are closely interlinked, since the investigation and description of any phenomenon usually presupposes its isolation as an object of description. The employment of the same term to denote both the phenomenon itself and the process of its description (cognition) often results in an insufficiently clear differentiation of the ontological and operational meanings of the term. Yet such differentiation seems methodologically essential if we are to avoid replacing ontological concepts by operational ones, which may lead to a confusion of operational concepts and descriptive procedures with language realities.

In the present article, the term "level" is used only in its ontological sense in order to characterise the objective structure of the language system. The problem of levels as stages in a description, investigation or analysis is a special problem, which is not considered here.

* * *

The concept of levels was first widely used by American descriptive linguists, although the idea of the stratification of language matter according to certain features has always been present in linguistics, as witnessed, among other things, by the traditional classification of linguistic material into phonetics (phonology), morphology, syntax, etc. The idea of levels has been elevated, in American descriptive linguistics, to the status of a concept of relationships between different elements in the language system and the method of language description. The idea of characterising the language system in terms of levels and, accordingly, of using the "level" method in the description of language has now been adopted by the most diverse trends and schools.

There are grounds to believe that the concept of levels, as used in linguistics in its general form (if one ignores the various modifications of the concept by representatives of different trends), if not borrowed

from the natural sciences in general, leaned heavily on the concept of structural levels in the natural sciences, where the concept of levels was used in the early years of this century by the American materialist philosophers H. C. Brown and R. W. Sellars. The concept of levels in the natural sciences is largely based on the notion of structural level, i. e., the level of organisation of living systems, with reference to evolution from the lower to the higher stages of organisation. To denote the relation between less high and higher levels of organisation in objects, the term "hierarchy" of the structures of these objects is often used.

The concept of higher and lower stages, or levels of organisation is used to characterise, not only biosystems but any material objects, with this concept implying qualitative differences between the levels. Thus the German materialist philosopher Georg Klaus writes: "Each stage in the organisation of matter has its own unique qualities that are irreducible to lower stages of organisation."¹

In its ontological interpretation the linguistic concept of levels also uses the notions of higher and lower levels, with lower levels formed by the organisation of simple units, e. g., phonemes, into a subsystem, while the organisation of more complex units, e. g., words, forms higher levels. Phonemes, morphemes, words, etc., and the subsystems they constitute are marked by qualitative differences.² The relations between the units of different levels in linguistics are also frequently described in terms of "hierarchy".

A certain similarity in the use of the concept of "level" in linguistics and, say, in biology, can readily be seen. This resemblance stems from language being regarded today as a complex system comprising particular subsystems which differ in their mission and the degree of complexity. Inasmuch as language is a systems object, it reveals a number of features in common with other systems objects, such as biosystems. For this reason, the isolation of objective subsystems (levels) in the overall system of language in order to get at the essence of language system organisation is methodologically no less important than the identification of "organisation levels" in the biosystems or any other material objects. At the same time, one cannot fail to see the profound difference between the concept of level in language and in biosystems. While in biology the concept of higher and lower levels is largely connected with the evolutionary development of living nature, in language the concept of higher levels resulting from the evolution of lower levels is untenable: a sentence does not evolve out of phonemes, morphemes or words.

This distinction stems from the very nature and function of language, which is a material semiotic system for the transmission of information; in other words, language is a means of human communication.

Language is a set of units (of varying degree of complexity) and the rules for their use. Language as a means of communication reveals patterns and models employed in building complex language units and various speech elements—concrete word-combinations and sentences. Language units are of two-way or one-way type. The former are

meaningful sound combinations, the latter—individual sounds (phonemes) which serve to differentiate two-way units. The use of language as an instrument of communication, i. e., its use in speech, consists, in the final analysis, in language elements being used to build special systems which compose, express and transmit information. Formed in the process of speech, such systems are concrete sentences which, being *speech systems*, consist of language units.

Language units differ in complexity and function: phonemes provide the sound elements of morphemes and words, morpheme combinations form words, and words combine in accordance with certain rules to form free speech units—concrete word-combinations and sentences. It is important to note that the units of a higher order do not develop out of lower-order units.

Thus in language and in speech systems, formed out of language units, the relation between lower- and higher-order units is one of components and a whole, and are not an evolutionary relation.³

Nevertheless, differences in the complexity and purpose of language units, which lead to qualitative differences, coupled with what one might call the "incorporation" of lower units in higher ones, warrant use of the concept of "hierarchy"⁴ to describe the relation between units of differing complexity, which are thereby ascribed to different levels. In other words, language, like other material systems has objective inherent structural features which permit the concept of different levels of organisation or different levels of structure to be introduced, which, in turn, presupposes different "levels" of its study and description.

* * *

The introduction of the concepts of levels in descriptive linguistics has in the main been intended to meet the challenge of developing methods of language description. Hence the attention devoted to the operational, or heuristic aspect of the concept of "levels".

Descriptive linguistics often sees levels as stages of analysis based on the "ascending levels of complexity of organization".⁵ G. Trager writes in a more recent work: "The levels are the consistent statements of different values derived from material."⁶ The terms "level of analysis" and "level of organisation" as used in writings by descriptive linguists seem to presuppose each other. Differentiation in levels is regarded as a fundamental methodological principle. "The analyst must at all times be aware of the level-differences, and the systematic presentation must always be made in terms of the logical sequence, in one linear order, with the levels carefully distinguished."⁷

However, descriptive linguistics has failed to provide objective criteria for "levels of organisation". Besides, the introduction of operational levels, or "levels of analysis", is prompted to a large degree by the course of analysis, sometimes indeed to a greater degree than by the real stratification of language matter, although different degrees of complexity of organisation remain a starting point in

identifying levels. The 27 levels of analysis introduced by G. Trager hardly correspond to the real levels of organisation found in the language system itself.⁸ The absence of any clear demarcation between the operational and ontological meanings of the term "level" makes "language level" objectively dependent on "level of analysis" though the linguist sets out to derive "level statements" from the material.

It is noteworthy that American scholars working on the stratificational (i. e., "levels") approach to language analysis have recently tended to increasingly focus attention on the study of the level organisation of language proper. Thus S. Lamb has remarked that in the first edition of his *Outline of Stratificational Grammar* (1962) "the emphasis was on linguistic description, and the treatment of properties of linguistic structure was subordinated to that aim and was scattered and very sketchy".⁹ In a new and revised edition of his book, S. Lamb writes, "... the characterisation of linguistic structure has been emphasised, expanded and consolidated".¹⁰ According to S. Lamb, all natural languages have at least four strata, and some, including English, have six.¹¹ Such a six-stratum structure can be regarded as consisting of three main parts—semology, grammar and phonology, each comprising two stratal systems.¹²

Lamb's stratification of language material is, in the final analysis, geared to developing a method of language description.

Other linguists concentrate attention on an analysis of the language level organisation in terms of the nature of its units, although the problem of criteria for isolating levels within language itself does not receive an adequate coverage. Thus the Soviet linguist E. Makayev, after enumerating the levels which, in his view, exist in language (phonological, phono-morphological, morphemic, syntagmatic, lexical and meta-semiotic, i. e., stylistic) proceeds to give the following characteristic of levels: "The difference between lower and higher levels lies, not only in one-way units (i. e., units which have only the expression plane) of the lower levels contrasting with two-way units (i. e., units which have the plane of content as well as expression) but also in the fact that as one proceeds from lower to higher units, from lower to higher language levels, the number of units constituting a level grows, the architectonics of these units becomes more complex, as do their paradigmatic and syntagmatic relations, and variation in them increases."¹³

This is an ontological concept of levels in the proper sense of the word, when levels are described in terms of the properties of their constituent units.

The ontological concept of levels seems prevalent at present as is evidenced, among other things, by the materials of the Soviet-Czechoslovak symposium (attended by linguists from Poland and the GDR) on levels in language grammatical system and their interaction, held in Moscow in April 1967. A common concept of level as a feature of the language set-up and of speech systems formed out of language material does not by any means indicate that there is a consensus of opinion as to the number and characteristics of language

levels. This is apparently due to the lack of sufficiently clear objective procedures in distinguishing levels.

The concept of levels in linguistics (in the ontological sense) is most frequently associated with various sets and aggregates of units. This is a natural approach, since in language there is nothing but various units and rules of their combination,¹⁴ and since the link between the concept of language level and a sum of units cannot be denied.

The real difficulty lies in the choice of the sum of units which may provide an objective basis for distinguishing a certain level, which in turn involves revealing the "level" properties of units, i. e., such properties which characterise the entire range of given units. Modern languages reveal a vast range of variegated units. Thus, derived words form a set of units distinct from those formed by simple and compound words respectively. The set of units comprising root morphemes is different from that consisting of word-forming morphemes. A set of vowel phonemes is different from a set of consonants. A group of plosive consonants is different from a group of affricates, etc. Does this warrant any distinction between the "level of derived words", the "level of simple words", the "level of compound words", the "level of vowel phonemes", the "level of affricates", and the like?

If we proceed in this fashion, we will have to recognise as many levels in language as there are identifiable groups of language magnitudes. The grouping of language magnitudes (units) in different sets may be carried out on the basis of different properties, which may be necessary for certain purposes. However, to recognise such groups as levels reduces the concept of level to a mere label for sets of units singled out on the basis of objective but fortuitous properties characteristic of some units, but not of others, and hence isolated and scattered, not necessarily characteristic of the overall structure of human language.

In such an approach, the concept of level is made dependent on the choice of properties for grouping units, i. e., on the researcher's point of view and his particular purpose at a certain moment. In other words, the definition of language level is, in this case, dependent on the "level of analysis" of language material, with the ontological level depending on the operational.

If one proceeds from the assumption that language system has different levels of organisation, i. e., levels revealing the structural features of language and independent of the researcher's point of view, one should first of all attempt to find out if there are properties characteristic of all language units, common to all language units, and providing a common and universal basis for assigning a certain place to language units in the language system, in the same way as the property of having a certain atomic weight, common to all chemical elements, enables to assign a place to each element in the periodic table.

* * *

All language units reveal their properties through their relations with other language units. In the most general sense, these relations can be reduced to three types: syntagmatic, paradigmatic and hierarchic. Syntagmatic relations are those among units in linear sequence (also referred to as combinatory relations); the paradigmatic relations are, to use Saussure's terminology, associative relations (grouping units into classes on the basis of community or similarity of certain essential properties); the hierarchic relations are based on the degree of complexity, with less complex units being constituents of more complex ones. Hierarchic relations can be described with the help of the expressions "is a component of..." or "consists of..."

At this point a clarification is in order. Hierarchic relations are always such that are based on degrees of complexity; however, the latter are not always hierarchic, or relations between a component and the whole. Thus, words of different morphemic composition differ in complexity, e. g., *stol* and *stol-ik-u* (the second being a diminutive dative case). However, the relation between these two words are not those between component and whole, since the word *stoliku* includes, not the word *stol*, but the morpheme *stol-*. In general grammatical terms the words *stol* and *stolik* in the system of the Russian language are homogeneous, both belonging to the class of nouns. In this sense, the relations between the two units are not hierarchic.

Given a different degree of complexity of two units, the relations between them can be defined as hierarchic only if in describing them one can use the expressions "consists of..." or "is a component of...". If, on the other hand, two units, such as *stol* and *stolik* while different in complexity of composition, do not reveal hierarchic relations, they can be described as relatively homogeneous units and, in a certain sense, as belonging to the same level of complexity.

Syntagmatic relations may be of actual interaction. In an abstract form, they may be represented as relations between certain classes. Paradigmatic relations are never those of real interaction, being relations among relatively homogeneous units formed, to use Saussure's phrase, by "mental association".¹⁵ Hierarchic relations obtain when a more complex unit comprises a less complex one. They are relations of a whole and a part, i. e., relations characterising the structure of various units (both in language and in speech; in the latter case they are formed by the use of language means).

The reservation must be made that hierarchic relations are relations between qualitatively different units of varying complexity, of which each is a component of another. One must bear in mind that the expressions "consists of..." and "is a component of..." may characterise another type of relations, viz., those between an element and a class, with elements forming part of a class. However, a class is merely a sum total of units, but not itself a qualitatively new unit.

The ability to enter these three types of relations is one of the more general properties of all language units, with all the three types being specifically interlinked.

Observation shows that syntagmatic relations can exist, not between any types of language units, but only among those of relatively the same level of complexity (relatively homogeneous units). Thus, phonemes in a linear sequence do not combine with morphemes or words, but solely with other phonemes, morphemes do not combine with phonemes or words, but only with other morphemes, while words combine only with words, not with sentences or word-groups.

The ability of given units to form syntagmatic relations is connected with the ability of these units to form paradigmatic relations. Thus, phonemes are grouped into different classes or paradigms, e. g., vowels and consonants. These classes, in turn, form the general class of "phonemes". This is the broadest class of these units (phonemes) in language that cannot be combined with any other units to form a larger class. Morphemes (meaningful parts of words) may form various groups or classes: autonomous morphemes, word-forming morphemes, inflexional morphemes, etc. All the morphemes in a language form the general class of "morphemes", which is the broadest class these units can form. The same holds for words, which form various groups (classes), e. g., nouns, verbs, etc., classes of significant and form words, etc. In their totality, all words form the broadest class of these units (words) in a language.

The broadest classes of units may be called super-classes or super-paradigms.

Units are brought together in super-classes or super-paradigms in accordance with certain rules, because a language paradigm is not just any set or random collection of units but a class composed of units possessing certain properties. (It may therefore be said that any language paradigm is a class of units, but the reverse is not true.) The procedure of bringing units into super-paradigms can, with some simplification, be illustrated by words. Each word, provided it has a system of differing grammatical forms (*dom*, *doma*, *domu*, *domom*, *domami*), represents a minor paradigm. As a "minor paradigm", the word *dom* (viewed as a system, i. e., paradigm of forms), together with other "minor paradigms" with similar or analogous properties, e. g., the words *stolb*, *kamen'*, *kniga*, etc., forms the class or paradigm of nouns. Paradigms representing full parts of speech form a large paradigm of *full words*. Similarly, all classes of form words form their own big paradigm of *form words*. Between them full and form words form the super-paradigm of *words*. A common feature of both the full and form words, distinguishing them from morphemes of all types, is the property of syntactic independence.

Each super-class, or super-paradigm, contains only relatively homogeneous units, i. e., units between which syntagmatic relations can exist. Thus, one super-class cannot simultaneously include phonemes and morphemes, phonemes and words, etc. Only units that can be combined linearly (syntagmatically) can be members of the same super-class.

We are referring to the possibility of such combinability in principle; in reality various languages impose restrictions on the combinability of phonemes, morphemes and words. (Thus, in Russian,

adverbs do not normally combine with nouns, etc.). The important thing is that phonemes combine with phonemes, morphemes with morphemes and words with words.

Members of super-classes can have neither paradigmatic nor syntagmatic relations with members of other super-classes. The relations between members of different super-classes can be only hierarchic, or those of inclusion, determined in the expressions "consists of..." or "is a component of...". Thus, a phoneme is included in the sound capsule or envelope of morphemes (and as part of the morpheme sound shells into words), morphemes are parts of words, and words are parts of sentences.

Super-paradigms, which are sets of relatively homogeneous morphemes, are objective groups of units singled out on the basis of properties common to all language units. These super-paradigms represent associations of units by levels, i. e., levels of the language system.

A level includes the totality of relatively homogeneous units (units of the same degree of complexity), which may enter into syntagmatic and paradigmatic, but not hierarchic relations (phonemes cannot consist of phonemes, morphemes cannot consist of morphemes and words cannot consist of words).

As a super-paradigm, a language level reflects the paradigmatic structure of all language units. Such "simple" units as phoneme and morpheme are kinds of paradigms ("minor paradigms"), a phoneme being a class of functionally identical (and phonetically similar) sounds, and a morpheme a class of its concrete varieties (morphs or allomorphs). Together with other "minor paradigms", phonemes form classes of phonemes, and morphemes classes of morphemes, etc.

A super-paradigm (level) is the result of the complete realisation of the ability of units of a certain type to form paradigms with similar units, when the units' paradigmatic capacity within a level is fully realised. There can be no paradigmatic relations between units of different levels, because they have qualitatively unique properties which preclude their being associated in the mind into the same class on the basis of common essential properties. All the syntagmatic properties of units, too, are fully realised within a level, with their capacity for actual combination in linear sequence finding full realisation.

In any language, super-paradigms or levels are orderly sets of units, and hence systems (or subsystems of the overall language system). Each level and its units are distinguished by unique properties, which points to the existence of different levels of organisation within a language system. The borderlines between levels are "transition to new quality". Thus, if a word as a syntactically independent unit (i. e., a unit belonging to word level) acquires the properties of a syntactically dependent part of a word, a morpheme (i. e., a unit of morpheme level), what we have is a qualitative change in the unit. Similarly, a new quality is acquired by a morpheme (sometimes even a suffixal one) which has become elevated to a word. (Cf. the English numeral suffix elevated to word status in "a girl in her teens".)

Units constituting a level organisation or system (subsystem) are elements in respect of that system and are therefore indivisible within their levels. Thus, a word of any morphemic structure (i. e., in itself a complex unit), being an element at word level, is just as indivisible at its level as a phoneme is at its own level and as a morpheme at morpheme level. Division of any word into parts leads to another level, i. e., the units of another system (subsystem). This explains why between units of the same level there can be no hierarchic relations, or relations of inclusion, as described in terms of being "a component of..." or "consisting of...". For instance, when they are included in complex sentences, sentences become clauses, and are no longer sentences.

Hierarchic relations can characterise only units of different levels, i. e., qualitatively different values. Here, the transition from a lower-level unit to that of a higher level is usually effected through combination, i. e., realisation of the syntagmatic properties of lower-unit elements (note that we are concerned here with the structure of the language in its synchronous state).¹⁶ This means that the syntagmatic level of the language (its speech chains) reflects hierarchic relations. In other words, syntagmatic relations are a form of the existence of hierarchic relations. Hence, in a sentence, all language levels are represented by their relations. This, in turn, means that all the levels can be discovered in the speech chain, i. e., on the syntagmatic level. For this reason one could take issue with S. Katsnelson's remark to the effect that "in extracting language units directly from the sentence and arranging them in levels following the sequence of their extraction from the sentence, the theory of levels obviously simplifies matters. Of the two types of relations characterising speech activity—the paradigmatic and combinatory, it takes account, in effect, only of combinatory ones".¹⁷ But the crux of the matter is precisely that syntagmatics is a form of existence of hierarchic relations. Hence, units of different levels can only be extracted from the sentence.¹⁸ It is another matter that in bringing together units of the same degree of complexity (i. e., relatively homogeneous units) in a super-paradigm (a level) one has to emerge from syntagmatics and take account of the ability of units to form classes, i. e., of their paradigmatic properties. But this again ultimately makes it necessary to turn to the speech chain (syntagmatics) since members of the same paradigm are described as elements which either occupy "one and the same place" in the speech chain (without any restrictions) or are in relations of complementary distribution, as, for instance, different forms of the same word.

* * *

In assigning language material to "compartments"—phonetics (phonology), morphology, lexicology and syntax, traditional linguistics was proceeding—intuitively or quite consciously—from the qualitative differences between units and was, in a certain sense, dividing

language material into levels, although the term "level" was not used. The absence of general criteria precluded a sufficiently clear-cut differentiation of levels, a vagueness that has remained even after the introduction of the concept of "level".

Offered by the three types of relations (syntagmatic, paradigmatic and hierarchic), a single criterion inherent in any language unit may be used as a guideline or starting point in isolating levels, but does not automatically solve the problem of distributing all language values among levels. To achieve that, a number of additional problems must be tackled: one of the more complex problems here is to establish in relation to which units and in what degree the expressions "is a component of..." or "consists of..." are applicable.

In his work on levels, the French scholar Emile Benveniste clearly formulates the main types of relations that can exist among units of different levels, and singles out the subphonemic or "merismatic" level as the lowest level in language. The differential or distinctive properties of phonemes are recognised as its units.¹⁹ Benveniste notes that differential features do not lend themselves to further segmentation this precluding syntagmatic relations between these features. However, they can be substituted, which, in his view, makes it possible to establish paradigmatic relations among them, this serving as a basis for distinguishing this level.²⁰ Even if one assumes that substitution of some differential properties by others is possible²¹ it is still questionable whether the expressions "is a component of..." and "consists of..." can be applied to describe the relations between objects and their properties. Generally speaking, an object possesses properties, but does not consist of them. A stone does not consist of weight, volume and hardness. Rubber has the property of elasticity, but elasticity is not a component part. Similarly, the relations between a phoneme and its differential properties can hardly be defined as componential relations, or, to use Benveniste's term, integrative relations.

That is why differential properties do not form a special language level, as do, for instance, phonemes. They are merely features of the units belonging to a certain level. That the "level criteria" cannot be applied to these properties is borne out, among other things, by the fact, pointed out by Benveniste himself, that they have no syntagmatic relations.

Nor can consideration of the properties of each level solve the problem of the status of a certain language level in respect of other levels. Thus, Benveniste's suggestion that the sentence is the highest-level unit has been called into question by the American linguist Kenneth Pike, who allows for the existence of still higher levels.²² Consequently, the question of the actual number of levels of organisation derived from the most general properties of language units calls for special analysis, which is beyond the scope of the present article.

One can merely touch briefly upon two questions which have a bearing on level organisation: the character of the units constituting a level and the question of combinations of units belonging to the same level which do not give rise to qualitatively new units of another level.

The unit of phonemic level—the *phoneme*—is an abstract language-system unit realised as a class of functionally identical (and, as a rule, phonetically similar) sounds. A phoneme is an invariant, i.e., an ideal object reflecting the properties common to a whole class of concrete sounds which are variants of a given phoneme. For this reason each concrete sound belonging to a given class possesses all phonemic properties and is, in effect, a *concrete phoneme*. In other words, a phoneme as an abstraction exists in its variants, as the general exists in the particular. Concrete phoneme variants are called phones or allophones. They are concrete phonemes, while the term "phoneme" is a short name for a class of concrete phonemes. Thus, the difference between a phoneme and a phone (allophone) is that between an abstract and a concrete unit. Phoneme and phone are different names for one and the same unit, viewed in the abstract (as an invariant) and in its concrete form (as an actual sound, or phone, to which a certain function has been given).

Viewed from this angle, sounds (phones) and phonemes as designators of classes of functionally identical sounds are not units of different language levels. There is no hierarchic relationship between a phoneme as an abstract unit and a sound (phone): a sound is a concrete phoneme, not a component of a phoneme.

A similar line of reasoning can be applied to such units as the morphemes and the morphs (allomorphs). A morpheme and a morph are not units of different levels: a morph is a concrete morpheme, while a morpheme is an abstract unit existing within each concrete morph and is a brief designation for a class of semantically and functionally identical morphs. In a similar way, a *word* is, on the one hand, an abstract unit, "a word in general", and, on the other hand, an actual word with an actual sound quality, in which latter capacity it is sometimes referred to as a *lexeme*.

In language ontology, units constituting a level exist as classes of concrete units, which operate in an abstract form as abstract units. The latter, for instance, a phoneme or a morpheme, reflect the pattern and organisation of concrete units each of which may be viewed as "representative" of an abstract unit. In a sense, then it may be said that units of one and the same level are represented as abstract and concrete units. Although abstract units have no independent existence outside of concrete units, they provide a given level with its designation and are treated as level units proper precisely because they reflect the pattern of the concrete units constituting a group of levels.

Inasmuch as abstract units exist in concrete ones, it is in place for instance, to use the expression "a word consists of morphemes" along with the expression "a concrete word consists of morphs".

Turning now to the second of the questions raised above, it must be noted that while a word as a unit at word level is a combination of morphemes, the reverse is not always true, since not any combination of morphemes forms the syntactically autonomous unit that a word is. A combination of morphemes may be a syntactically non-autonomous part of a word, e. g., a stem (as in inflexional languages, where the

stem is that part of a word to which "inflected parts" are added). A syllable, which is a combination of phonemes, represents a morpheme or a word only in languages of the so-called isolating type (Chinese, Vietnamese, etc.). In many other languages, a syllable is merely a phonetic unit which does not coincide with a morpheme. Finally, in all languages a sentence is a combination of words, but not every word-combination is a sentence. It may be just a *word-group*.

Such units as *syllable*, *stem*, and *word-group* "consist of" units of respective levels, but do not possess new properties that enable them to be qualified as units of a different level (a syllable need not always be meaningful; a stem is a non-independent part of a word; a word-group lacks predicativity, and like a word, has a nominative function).

It will be seen, then, that a combination of units of a certain level does not necessarily result in a higher-level unit being formed. For that to take place, a new quality must be generated. The presence, in language, of the aforementioned types of units seems to suggest that there exist language units that are outside the main levels and form intermediate layers between levels. However, in their properties they tend to be similar to the units they are made up of. All this testifies to the complexity of the language level structure and calls for special study.²³

* * *

As distinct from such units as phoneme, morpheme and word, which are, in the words of L. Shcherba, the Soviet linguist, part of the repertory of language "as a system", a concrete utterance in the form of a sentence belongs to speech. A sentence is not a means but a product of language resultant from speech activity. While the above units, according to the Soviet linguist A. Smirnitsky, exist ready-made in language²⁴ and are reproducible in speech, a sentence can be produced in speech. That is why a sentence is defined as a unit of speech.

The same hierarchic pattern that is revealed in the relations between different-level units in the language system also marks the relations between language units, e.g., words and such a unit of speech as the sentence. The latter, which, as already mentioned, is a message-carrying system, freely formed in speech, reveals the same systems' principle of relations between lower and higher units which is characterised in the expressions "consists of..." or "is a component of...": sentences consist of words, and words form sentences. A higher-level entity is qualitatively distinct from its component parts. A sentence expresses and carries coherent information, or, to fall back on the school-grammar definition, expresses a relatively complete thought. By contrast, words as such express isolated meanings, which in themselves do not carry a coherent message.

Apart from sentences, speech units also include certain freely formed words of the type *stosabelniy*, *trekhsotsabelniy*, etc., (to say nothing of so-called free word-groups). Words that are formed in speech consist of morphemes, just as the latter make up words that

are reproduced ready-made as units of language.²⁵ The principle "consists of..." can be equally applied to language units proper and to the speech units which they form. In the final analysis, speech units consist of language units. A sentence may consist both of words that are language units and words that are speech units e.g., *v derevnyu pribyl pyatidesyatisabelniy otryad*). Morphemes are never made in speech, being part of the language "as a system". In the speech system (i. e., the sentence) sentence and morpheme are the extreme points of the same hierarchic chain. The morpheme is included in the sentence by being first included in the word, which, being divisible into morphemes, is an indivisible element of a higher system—the sentence.

Schematically, the hierarchic pattern revealed in a message-carrying speech system can be represented in the following way:

morpheme——word——sentence
(for the sake of simplicity other units are disregarded in this scheme).

Thus units of lower levels, e.g., morphemes and the levels they form, belong to language as a means, while higher-level units, e.g., sentences and the level they constitute, belong to speech, thus representing the use of language. Words, as units intermediate between morphemes and sentences, may belong both to language and to speech. That is why this level, unlike the higher and lower levels, includes both language and speech units. Since language is an instrument, or a means, and speech its application, speech may be described as "language in action", in the process of functioning. In respect of language as a *means of communication*, the highest level is that of words. As a rule, units formed of words belong to speech (with the exception of phraseological units and idioms).

The systemic quality of language as a means—its level organisation—is not only revealed in speech, but is inherent therein. That is why the level pattern involves both language as a means and its application in speech. The lower levels characterise only language itself as a means, while the higher are characteristic of speech as the use of language. The reference of lower levels to language and of higher levels to speech is a consequence of language being a system whose elements are used in the process of speech to form various orderly systems that carry information, while the rules of forming speech systems are contained in language itself as a means.

* * *

The level organisation of language is an objective quality of its system. In the light of the foregoing, a language level can be defined as the broadest possible aggregation of relatively homogeneous units (a super-class or super-paradigm) which, within that level, do not reveal hierarchic relation to one another, but realise all their syntagmatic and paradigmatic relations. Units belonging to a definite level are marked by qualitative features distinguishing them from units of

other levels, with which they enter neither into syntagmatic nor paradigmatic relations, but solely into such that are hierarchic.

In the overall system of language, levels are subsystems possessing their own internal order, i.e., structure. Levels are interlinked within the single language system, through their units.

The ascertainment of levels in the system of language would go a long way towards revealing the systemic organisation of language and understanding its nature.

Levels, as a feature of the organisation of language material, presuppose corresponding "levels of its analysis". If levels of analysis are interpreted as stages or phases of consideration of language material, then there may be far more such levels than there are levels of language organisation. The units constituting a given level of a language system can (and usually must) be considered in stages, from various angles and for different purposes. A phoneme may be considered as an integral means of distinguishing the sound envelopes of bilateral units and as an object possessing certain properties (e.g., distinctive features). In the latter case, one can evidently speak of considering a phoneme on the plane of its distinctive features, i.e., of a "level of analysis" of a phoneme from the point of view of its definite properties. However, this level of consideration does not yet indicate the presence of units constituting an independent level of language organisation. Distinctive features are qualities of objects (phonemes) belonging to one and the same level.

"Levels of analysis" depend on the properties and facets of objects which a researcher singles out for scrutiny, i.e., on the point of view taken by the subject with regard to the object of study. "Levels of organisation" are objective features of the structure of the object (language). These depend solely on a correct identification of the objective features and properties which distinguish them from one another within the systemic object itself.

NOTES

¹ G. Klaus, *Kybernetik in Philosophischer Sicht*, Berlin, 1961, pp. 117-118.

² In criticising the levels theory as expounded by the descriptivists, the Soviet scholar S. Katsnelson observes that "the morphemes 'constitute' a word very differently from the way in which words 'constitute' a sentence...". See S. D. Katsnelson, "On the Theory of Linguistic Levels", *Problems of General Linguistics*, Moscow, 1964, p. 39. In other words, the "incorporation" of less complex units into more complex ones is marked by qualitative differences. In a later work S. Katsnelson writes: "This theory ignores the qualitative differences of real language units, reducing everything to the difference in the 'assembly level': in such an interpretation the unit of one 'level of analysis' differs from another only in the degree of complexity, and in it alone." S. D. Katsnelson, *Language Typology and Speech Thought*, Leningrad, 1972, p. 99 (in Russian).

³ We are not concerned here with the genesis of various language units and the speech units they form, since in any known language more complex units include less complex ones as their components, but do not evolve from them.

If one proceeds from the widely held hypothesis that language initially developed from inarticulate ejaculations by ancient anthropoids and considers that such inarticulate sound complexes served to convey information, i. e., were analogues of what is now

called sentences, the process of the emergence of language "levels" appears to be the reverse of that of the development of "levels" in biological systems. Lower levels arise from the division of a whole (higher level), with articulate sounds isolated from inarticulate complexes, "words" isolated from inarticulate "sentences", and the division of "words" yielding its components—"morphemes".

⁴ As will be shown elsewhere, not every relation of differing complexity is hierarchic and indicative that the corresponding language units belong to different levels.

⁵ G. L. Trager, H. L. Smith, *An Outline of English Structure*, Washington, 1957, p. 81.

⁶ G. L. Trager, *Linguistics Is Linguistics*, Buffalo-New York, 1963, p. 24.

⁷ G. L. Trager, H. L. Smith, op. cit., p. 54.

⁸ G. L. Trager (op. cit., p. 24) writes that "language is to be treated in three ways ... at the first level of analysis, and then in the nine ways at the second level". He goes on to observe that there is also a third level, which brings the total number of headings to 27.

⁹ S. M. Lamb, *Outline of Stratificational Grammar*, Washington, 1966, p. 111.

¹⁰ Ibidem.

¹¹ See Ibidem, p. 1.

¹² See Ibidem.

¹³ E. A. Makayev, "The Concept of System Pressure and the Hierarchy of Language Units", *Voprosy yazykoznaniiya*, 1962, No. 5, p. 49.

¹⁴ The rules of combining units are ultimately determined by their inherent properties. See V. M. Solntsev, *Language as a Systemic and Structural Entity*, Moscow, 1971, p. 63 (in Russian).

¹⁵ Ferdinand de Saussure, *Cours de linguistique générale*, Wiesbaden, 1968.

¹⁶ These are so-called normal cases of differences between units of different levels. In particular cases, when external differences between different-level units are "neutralised", qualitatively different units may not differ externally, as in the following example cited by A. Reformatsky: *eo rus* "I go to the village", *i-go!*; where *i* is a phoneme, a morpheme, a word and a sentence (A. Reformatsky, *Introduction to Linguistics*, 1955, p. 21, in Russian). Here, qualitative (level) distinctions of units are established by way of comparison of such particular cases with normal ones.

¹⁷ S. D. Katsnelson, *On the Theory of Linguistic Levels*, p. 37 (in Russian). See also S. D. Katsnelson, *Language Typology and Speech Thought*, p. 99 (in Russian) where similar ideas are propounded.

¹⁸ Various levels are present in a phrase simultaneously and are to be extracted step by step, as illustrated by G. Trager and H. Smith in their analysis of the sentence *Long island is a long island*. See G. L. Trager, H. L. Smith, op. cit., p. 68 ff.

¹⁹ See Emile Benveniste, "Les niveaux de l'analyse linguistique" in *Preprints of Papers for the Ninth International Congress of Linguists*, Cambridge, 1962, p. 493.

²⁰ Ibid., pp. 492-493. According to Benveniste, differential properties make themselves evident "within a phoneme".

²¹ As the present writer sees it, this is debatable, to say the least because, as Benveniste himself admits, no properties can be realised outside the phonetic articulation through which they are manifested (Ibid., p. 493). The latter means that substitution of properties within one phoneme is impossible, because it would result in a different phoneme appearing. Thus, substitution is a purely mental operation.

²² See *Proceedings of the Ninth International Congress of Linguists*, The Hague, 1964, p. 283.

²³ Intermediate and borderline cases are highly characteristic of language. One can thus fully apply to language F. Engels' words to the effect that hard and fast lines are incompatible with the theory of development (F. Engels, *Dialectics of Nature*, Moscow, 1964, p. 215), and that there are no absolute boundaries separating different phenomena, which does not mean that these phenomena do not possess distinct qualities that enable them to be distinguished.

²⁴ See A. I. Smirnitsky, *English Syntax*, Moscow, 1957, p. 14 (in Russian).

²⁵ The difference between words that are language units and words that are speech units lies solely in the fact that the latter are the result of free combination of morphemes according to a set pattern. More on this in V. M. Solntsev, op. cit., pp. 148-160.

Developing Countries: New Researches

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Developing Economies in Terms of Growth and Reproduction

We give here the author's abridged version of his article under the same title, published in the Russian language in a symposium *Theories of Economic Growth of Developing Asian Countries*, issued by the Institute of Oriental Studies, USSR Academy of Sciences, Nauka Publishers, Moscow, 1973.

The purpose of the present article is to critically examine some analytical tools of economic progress in less developed countries, tools which have become traditional.

It seems to us that any new economic category which has recently won recognition must find a place among others, previously advanced, which have already rooted in science, and enter the general system of concepts so as not to upset the logical apparatus of the given branch of knowledge.

But it is for this purpose that work is needed of interpreting and delimiting the sphere of application of old and new, Marxist and non-Marxist, concepts which characterise the economy as an integral organism in constant motion and regeneration.

For the present article the writer has selected the following terms of economic dynamics: 1) reproduction and economic growth; 2) capital and income (revenue); 3) savings and investments.

Reproduction and economic growth. In our opinion, the modern term "economic growth" is closest of all to the Marxist category "reproduction on an extended scale" used in contrast to "simple reproduction". What is this proximity if we think in categories of a national economy, i.e., on a macro-economic level? To begin with, both concepts—economic growth and reproduction on an extended scale—characterise or describe an economic system in a state of expansion, of ascending movement, whatever indicators of this process we take—the volume of output created or reproduced wealth—or, lastly, the sum of living and dead (materialised) labour applied during a fixed period. Moreover, both terms of dynamics are used ordinarily for an analysis in defining states, economic structures or sectors marked not by episodic, but by more or less stable progress in the material sphere. Lastly, the quantitative side of economic processes—progress of the economy above all—is the key element in these concepts.

Marx, too, considered the quantitative side to be the underlying principle of that concept: while simple reproduction is marked by a static rate of output, reproduction on an extended scale is marked by a progressively increasing scale of production. "In economic forms of

society of the most different kinds", it is pointed out by Marx, "there occurs, not only simple reproduction, but, in varying degrees, reproduction on a progressively increasing scale."¹ It is also important to note that the author of *Capital* regarded the growth of the population as one of the constantly operating factors which impelled pre-capitalist society and collectives to effect reproduction on an extended scale and, hence, the allotment of the product between the surplus (potential fund of growth) and necessary components. Referring to the role of profit as a source of constant capital, Marx noted in passing: "This part of the profit consists of the *surplus labour-time, which, even without the existence of capital, must constantly be performed by society, in order to have at its disposal, so to speak, a fund for development, which the very increase of population makes necessary.*"²

Thus reproduction on an extended scale, taken from the angle of the quantitative increment of the product, in fact is tantamount to the term "economic growth".³ Both terms denote a growth of output in the given period as compared with the preceding one or, to put it differently, the increasing scale of production. To use modern terminology, an increase in the gross domestic product of a country or the gross product (income) of any lower economic unit—such is a feature inherent in reproduction on an extended scale. Here the *point d'appui* is solely the level of production in the preceding period and the measure of comparison is the quantitative measurement of production (the mass of output, the sum of reproduced and newly created values, past and new labour embodied in the annual product). Therefore a comparison of, say, output with the number of employed (indicators of productivity) or with the size of the entire population (per capita calculations) with preceding inputs, or outlays (efficiency measures) and so on, has no direct bearing on an analysis of reproduction on an extended scale taken in the quantitative aspect. What is important in the latter case is only that the given economic system is growing, is not in a static but in a progressing dynamic condition—regardless of the trend of movement of other parameters.

From this angle a number of critical remarks can be made concerning the methods of quantitative comparisons accepted and widely utilised now in Soviet and also in foreign economic literature.

The biggest objections here are aroused by the identification of economic growth with the growth of per capita output or income. One of the most eminent Western scientists among exponents of the school of "dynamic economics", Arthur Lewis, in his work *The Theory of Economic Growth*, defines its main theme as follows: "The subject matter of this book is the growth of output per head of population... Most often we shall refer only to 'growth' or to 'output', or even occasionally, for the sake of variety, to 'progress' or to 'development'. Whatever the short term used, 'per head of population' should be understood."⁴

Leaving aside the question of the acceptability of such methods for studying economic growth of developed countries, let us examine the scheme of Lewis from the viewpoint of analysing changes in Third World countries. Here the researcher at once is faced with a problem

which, in our view, is cardinal: are per capita calculations suitable for measuring economic growth (reproduction on an extended scale) in states marked by the highest growth rates of population in the world? If we reply to this question in the affirmative, we may come to absurd conclusions, for example, that a country where the annual increase of the national product is, let us assume, 2 per cent, while population growth is also 2 per cent, is effecting only simple reproduction like any other country where both these indices are equal to zero. Contrariwise, a country where the population is decreasing (in this case the reasons do not matter—mortality, emigration, and so on), while the production of the national income is stationary, achieves economic growth and reproduction on an extended scale because its per capita calculations rise as compared with states which feel the consequences of the “demographic explosion”. In our opinion, these elementary examples are quite sufficient to demonstrate the unacceptability of the division of the national product “per eaters” (moreover, in such calculations no account is usually taken even of propensities to consume different as they are for various age brackets) for characterising the progress of the national economy as a whole and for evaluating the nature of national reproduction. In our opinion, a macro-economic analysis must be based on a consideration of changes and a comparison of aggregate magnitudes. The given example of integration in analysing the national economies of entire states is wrong.

It goes without saying that for characterising the level already achieved by a given economy, for a comparison of this level with the corresponding situation in other states, lastly, for determining the position of different countries in the world economy and the shifts in this respect—for all this the employment of per capita calculations of consumption, income and capital formation is absolutely necessary. Strictly speaking, it is required in all cases when it is a matter of international comparisons and a comparison of productivity achieved in different sectors and industries within a given national economy, determination of the level of material welfare of the population, the size of the capital base of the national economy of a state. But it seems to us that for establishing the velocity of the entire “economic machine”, for ascertaining the possibility of accelerating or retarding this process, per capita calculations are simply unacceptable, and here by the very logic of these concepts the categories of a macro-economic order are required.

If we try to sum up this section of the article, the following general and highly topical question for newly-free countries arises: what is the real effect of the “demographic explosion” on economic growth, reproduction and the development of the national economy as a whole? Usually both economists and demographers reply to this question in the negative, namely, that a swift growth of population has a retarding impact on the development of the economy, leads to a switch over of financial and physical resources from the potential investment fund to current consumption, hampering the conversion of society predominantly from a consuming into an accumulating and

producing society. We think that in this outwardly irreproachable line of reasoning there is a certain confusion of terms and the replacement of some questions by others. Indeed, a tense demographic situation is compelling Third World countries to step up economic growth and actually to achieve extended reproduction on the scale of the entire economy in order to ensure at least stable rates of consumption and growing employment for their entire increasing population.⁵ But all this means economic development and movement towards overcoming economic backwardness, however slow it may proceed. The existing confusion in these questions is caused apparently by the fact that many authors make no distinction between such dissimilar concepts as “poverty of population” and “economic backwardness”, “progress of welfare” and “economic growth”, “economic development” and “improvement of living standards”. Here we can refer once again to the British economist Arthur Lewis but in this case for reinforcing the critical remarks we voiced. Describing the subject matter of his study, he strictly delimits the concepts “growth of produce”, “distribution” and “consumption”, illustrating his thought in the following way: “It is possible that output may be growing, and yet that the mass of the people may be becoming poorer... . Output may be growing while consumption is declining, either because saving is increasing, or because the government is using up more output for its own purposes.”⁶ It is easy to notice that that growth of population here in essence has a similar action on the mechanism of consumption and distribution but not on the mechanism of the economic organism itself. Thus, the growth of population is objectively a positive factor of extended reproduction and economic growth, whatever material, social and other costs it involves for a country.

Capital and income (revenue).⁷ Both the classic and Marxian political economy draw a deep differentiation between these terms of economic analysis exceedingly important from the scientific viewpoint. The main divide between the “capital” and “revenue” (income) concepts is the different utilisation of these fixed values by their owners, and what class of “labour” they are exchanged for. Referring to Adam Smith, Marx saw “one of his greatest scientific merits” in that he elaborated the concept of productive and non-productive labour on which the differentiation of capital and income is based. “He [A. Smith—L. R.] defines productive labour as labour which is directly exchanged with capital...” “This also establishes absolutely what unproductive labour is. It is labour which is not exchanged with capital, but directly with revenue, that is, with wages or profit...”⁸ Somewhat further Marx, returning to this question, specifies Smith’s proposition as follows: “In the one case the labour is exchanged with capital, in the other with revenue. In the one case the labour is transformed into capital, and creates a profit for the capitalist; in the other case it is an expenditure, one of the articles in which revenue is consumed.”⁹

Lastly, in its most consummate form the dialectical distinction between these two terms is given by Marx already on the macro-economic plane when he traces their relationship within the bounds of

the entire bourgeois society: "If productive labourers are such as are paid from capital, and unproductive such as are paid from revenue, the proportion of the productive class to the unproductive is obviously that of capital to revenue. The proportional growth of the two classes, however, will not depend only on the existing proportion of the mass of capitals to the mass of revenues. It will depend on the proportion in which the increasing revenue (profit) is transformed into capital or expended as revenue."¹⁰ It seems to us that these quotations contain the quintessence of the views of Marx concerning the problem "capital-revenue".

If we now transfer our exposition onto a more modern plane it should be noted that Marxist economic science today, using the terms "domestic product" or "national income" as applied to non-socialist countries, makes little use of the category "capital" at the macro-economic level of analysis. Marx used the term "social capital" to encompass the sum total of all private capitals operating in the country, finding already in this transition into a new quality also a basis for analysing "national reproduction"; in present-day conditions, however, in which a considerable part of the capital operating in society is managed and controlled by the state, the terms introduced by Marx acquire immediate instrumental meaning in Western and developing countries.

For the newly-free countries a study of the problem of "capital-revenue" at different levels of economic development, an analysis of the transformation and "crossing" of the interconnected economic terms and bringing out the general trend of these processes are one of the cardinal questions of studying national reproduction. The category "income" as distinct from, and independent of, "capital" has here a significant spread and analytical meaning, since the major sources of revenue in the less developed countries are not profit and wages, but various pre-industrial forms of property and the earnings of the working, non-proletarian, petty-bourgeois elements of traditional society. Moreover, large masses of the money incomes of the wealthy classes in "poor countries" are applied in spheres where "income generates greater income" through the redistribution of the values already created (land property, house-owning, usury, stock- and commodity-jobbing, corruption, and so on). These masses of the income and money resources are actually excluded from the circulation of modern industrial capital, although they comprise a potential fund of a nation's capital formation.

What does the social capital of a developing country consist of, what are the main sources of forming it, and its component parts? It seems to us that the main criterion here is not the social or even the national origin of the productive capacities employed in the national economy but their place and role in the system of national reproduction and the circulation of industrial capital (in the broad sense of the word). From this viewpoint the fixed and working assets belonging to the government, local capitalists and also to foreign firms operating in a country on concession lines or on the basis of agreements are part of the sum total of the social capital of the country. If we approach

the problem of the capital of a nation from the viewpoint of political economy, the import of capital from abroad and also loans for productive purposes received from developed countries, in the overwhelming majority of cases are actually increments of the capital functioning in a country, the creation of new industrial capacity.

In our opinion, it is fundamentally important to include "foreign assets" into the social capital of a developing country in order not to give (theoretically) extraterritorial rights to foreign monopolies. If we were to admit that the assets of foreign companies are an "alien body" this would run counter to the generally recognised proposition about the sovereignty of a national state over any property of "non-citizens".

Thus, putting forward this proposition about foreign loan and equity capital we by no means intend to idealise the aims and methods the latter pursues and employs for extracting maximum advantages for itself, often to the detriment of the economic and other interests of developing states. In this sense cooperation and partnership with foreign capital is and will always be, at the same time, a struggle for the utilisation of the know-how and capital of Western powers with the object of accelerating economic growth, increasing the scale and improving the composition of national investments, a struggle for the achievement of less burdensome conditions for international "capital" imports. Of great interest from this viewpoint is the formulation of the question of concessions given by Lenin in 1920-1921 in view of the extremely hard economic situation in the Russian Soviet Federative Socialist Republic and the need immediately to find physical resources for restoring and advancing the country's productive forces.

Deriding Communists who "have a book-knowledge of capitalism and finance capital", but "don't know how to do business with financial magnates and... will never learn", Lenin set the task to "attract foreign capital to our concessions... to improve our economic position" and "to increase the quantity of foodstuffs at any cost". In his report on this question he examined in detail both the necessary stimuli for attracting such capital and also the measures which would guarantee the observance of the interests and benefits of the Soviet side.¹¹ Clearly, such an approach to the utilisation of foreign capital is closer to the real conditions and needs of developing countries than a purely negative approach to its economic role.

Here, however, another question also arises: how is it possible to consider the capital assets of the public sector as part of the active social capital of the nation if they, at best, ensure only marginal profitability and often for a long time cause only losses covered from the budget? Without going into the details of the technical and financial aspect of this problem, let us note only two factors, important in our opinion, which reflect the role of public productive assets in the movement of a country's aggregate capital. First, assets of the public sector or, in any case, their biggest part are included in the joint circulation and exchange of goods and services with the private sector. With a policy of low prices for public goods, services and credit for stimulating production, investments and profitability of

private enterprises, low or even zero remunerativeness of public establishments is to a certain extent nominal, while the profitability of the private sector is exaggerated. Second, it is a fact that industrial capital participates in social reproduction not only through the reinvestment of the current profit, but also through the capital consumption and other reserve funds.

In his work, *Theories of Surplus-Value*, Marx specially examines this side of the movement of capital and its renewal. "Where... much fixed capital is employed," he wrote, "that part of the value of the product which replaces the wear and tear of the fixed capital provides an *accumulation fund*. This is an important point..." "It is a fund for the continuous introduction of improvements, expansions, etc."¹² Although the absolute size of these funds in Third World countries is not so big, the possibility of manoeuvring with them may be even somewhat greater than in developed countries because the economy of Third World countries is more tolerant to the less modern, but still productive equipment, than the productive facilities of the "leaders" of the scientific and technological revolution. Thus, the magnitude of social capital, in the narrower sense of the word, the total productive capacity of the economy, is a major parameter characterising the economic level and potential of a country and also, to a certain extent, of the reserves for economic growth existing in it. With an even scale of these magnitudes, their structure in different states can be more favourable or less favourable from the socio-political viewpoint (for example, the relationship of the private and public sectors, foreign and national capital), sectoral, financial, economic, economic-geographical and other aspects, and also for their entire complex. These "components" are not the subject of the present discussion, although it is difficult to overestimate their significance. Our task is somewhat different—to draw attention to the term "capital" at the macro-economic level (on the scale of a country's economy); this term has the same right to existence as those now widely employed—"social reproduction", "domestic market", "national economy"—whose need for the economic characteristic of developing countries hardly anyone will challenge.

Savings and accumulation. In less developed countries we see an intricate interaction and intertwining of the money and capitalist economy, of incomes from modern entrepreneurial activities and from transactions with money, some types of goods, real estate and land which have nothing in common with the circulation of modern industrial capital; current incomes of salaried classes and self-employed persons, besides such sources of wealth accumulation as rent interest or commission fees. This enumeration could be continued almost *ad infinitum*, just as could the methods of "making money", "deriving incomes" and "earning a living" in countries with a quaint combination of socio-economic structures and the stratification of the population living in conditions of caste and communal traditions, mediaeval survivals and customs, the mores of the epoch of primitive accumulation and developing capitalism with its inherent forms of *étatisme* and monopoly concentration. All this demands, in our

opinion, a number of corrections in the methods and terminology related to the study of the process of accumulation in developing countries.

To approach the given problem from the politico-economic angle it is necessary first of all strictly to differentiate the types and forms of accumulation as such, depending on what category of capital is really accumulated, that is, undergoing spontaneous growth. From this angle the divide passes between modern industrial capital, on the one hand, and the different types of traditional capital (money-lending and commercial establishments, trading and banking houses) which we for convenience's sake unite under the term "money capital", on the other. Employing the term "industrial capital" we use it in the sense imparted to it by Marx: this capital moves according to the laws of capitalist reproduction irrespective of the particular industry or phase of circulation: "Just as industrial capital can exist in the sphere of production only in a composition which meets the requirements of the production process in general, hence also of the non-capitalist production process, so it can exist in the sphere of circulation only in the two forms corresponding to it, viz., that of a commodity and of money"¹³ The accumulation of capital through the reinvestment of profits, accelerated amortisation or centralisation of individual capital invested in enterprises of the public or private sectors, in companies of local or foreign origin, comprises the internal mechanism of industrial capital growth, in whatever early stage or in whatever sector of the economy this phenomenon is observed. It is either private capitalist accumulation or public capitalist accumulation in the form of public capital assets. This movement of industrial capital itself can with certain reservations be defined as "self-financing", noting in passing that in Third World countries it makes up so far a smaller part of the gross capital formation in the private and public sectors.

But here it is important to emphasise something else: contemporary industrial capital is a major element of the national resources which dropped out "forever" from the consumption sphere and is the most dynamic factor of economic transformation and industrial accumulation. The possibilities of growth and accelerated accumulation for the economy of a developing country are the more favourable "the greater the productive capital already functioning in a country (including the labour-power, the producer of the surplus-product, incorporated in it), the more developed the productive power of labour and thereby also the technical means for the rapid expansion of the production of means of production..."¹⁴

We use further on the term "money capital" of the old type because business activities proceed almost exclusively in the sphere of circulation, while the money form most adequately expresses its essence: accumulation of the money values and liquid assets. Differing from industrial capital, first, in relative "indifference" to the level and progress of the productive forces (it can exist and grow spontaneously under a stable or even decreasing production) and, second, in mobility and the ability swiftly to adapt itself to the changing commercial situation in view of the preponderance of

high-liquid floating assets in its composition, it is hardly inferior to modern private companies in the volume of turnover on the domestic market, the speed of accumulation and absolute size.

The role of money capital in reproduction and accumulation is contradictory. On the one hand, it is a potential and real reserve of "surplus" money resources which gradually and in some periods very rapidly shift between active business operations and participate in the floating of equity capital and the organised credit system. These processes began in some developing countries already in prewar years and are quite intensive in the present period, too. On the other hand, the factors and conditions favouring the preservation and even expansion of primitive accumulation (the prevalence of small-scale independent producers both in the industrial and agricultural sectors, inflation pressures, abundance of the cheap underemployed labour) impede the formation and growth of national productive capital on the scale of the entire economy, cause at times even reverse movements with a sharp decumulation among the money capitalist and hoarders.

Thus, both types of accumulation and capital increasingly stand opposed to each other as the newly-free countries make progress; but in the economic conditions of Third World states, primitive accumulation continues to serve as an important complementary source of capital formation in the modern sense of the word, and it would be a naive utopia to ignore this fact or to expect that in the foreseeable future it will exhaust itself. Moreover, even in countries where the state has assumed direct control over principal economic activities, it is compelled to utilise both sources of accumulation and economic growth in other forms, of course, under less unfavourable social conditions.

If we consider that "money capital of the traditional pattern" is the second important source of capital formation in less developed countries, the third source is the current savings of the population. But first it is necessary to say a few words about the term "savings" as such.

If accumulation can be conceived both in physical and financial terms (there are even schools of economists which give preference to one or the other), the term "savings" at once introduces the researcher into the sphere and system of money flows. The cardinal fact of the existence of accumulation is the growth, increment of output, value, and means of production, while savings are presented above all in terms of accounting—receipts and spending—and depend on the balance of the entering and withdrawn money resources. That is why the simple formula of saving is reduced to the saved (accumulated) share of the income exceeding its spent (consumed) share, whatever form or rank of the latter we take—the national income of a state or the personal income of different groups of the population or income from property obtained by the owners. Moreover, "savings" should be understood not as a virtue of voluntary abstinence but as a socially and economically motivated act, as a result of which part of the income of the nation is withdrawn from current consumption and

under definite conditions can augment the resources for capital formation.

It goes without saying that different types of saving are at a different stage of proximity to transition into this new condition and some of them are for a long time withdrawn from direct consumption and also from accumulation proper. But the tremendous scale of hoarding these resources coupled with a slow but steady change in tastes and habits of the population makes it hardly possible to ignore this "growth potential". While Marx in many cases regarded the purely money capital as "potential productive capital", many types of saving may also be treated as potential capital awaiting conditions for transition from the immobile state.

Although definite types of income do not necessarily correspond to "their own" types of saving, the nature and size of an income are so essentially important for the formation and the type of saving that it is more convenient to link the examination of this question with an analysis of the main classes of income existing in "poor" countries.

1) Business incomes gained from the employment of capital irrespective of the sphere or type of investment (modern or old). If we leave aside the growth and circulation of capital as such, the different groups of the bourgeoisie act as the receivers of a definite current personal incomes and, after the payment of taxes, part of it is spent for current consumption and part of it is saved, that is, put aside and "invested" as money in different ways: deposited in banking establishments, used for buying stocks, securities and real estate, for purchasing highly durable or valuable articles which may be regarded not only, and at times not so much, as articles of consumption but as patterns of saving and "investing" money.

2) Incomes from property-owning and real estate. Among this class of incomes are first of all rent receipts from land-owning, house property, mineral plots, and so on. The receivers of this type of unearned income, like the preceding group, make savings from different types of current income, moreover, they can "invest" them in such a way that "income should produce a greater income" or use the savings for transfer to the "real capital" sector, that is, to establish its own business or to invest it in acting enterprises.

3) The incomes of the most extensive group of the own-account workers and petty entrepreneurs, combining ownership of productive assets, the input of personal labour and the use of both family and hired workers (the latter attribute is not obligatory). Depending on the size of the personal income, often at the level of the skilled worker or even below it, this category of persons are usually inferior to the former in living standards, but they "save" more, "invest" more and ensure, in conditions of competition with big capital and pressure of middlemen and money-lenders, actual reproduction on an extended scale along the lines of money and labour inputs, growing productive assets and increasing output. Since a considerable part of the increment in the assets of such businesses is achieved by savings from current personal consumption, in this case the categories "saving" and "investment" are actually indistinguishable. Savings are materialised in

the form of an increase of productive assets of an economic unit. The given category includes first of all the small-business stratum in agriculture of the type of the "kulak-farmers", petty industrialists, and also large groups of the peasantry and handicraftsmen who are capable of saving in one or another form. "It is exactly the same in the capitalist mode of production," Marx wrote. "The independent peasant or handicraftsman is cut up into two persons. As owner of the means of production he is capitalist; as labourer he is his own wage-labourer."¹⁵ Such types of a producing, saving and investing population are also available in the economies of the developing countries.

4) Persons with fixed incomes of the type of wages, salaries, fees of the persons employed in the services and liberal professions. At first glance such a combination may seem senseless because of the different sources and origin of the money earnings received by these groups. But it is in this group that we most distinctly trace the distribution of the current income between the saved and consumed shares. Here, as a rule, there are no categories of "property" and "capital", etc., which complicate the analysis and, to use modern economic language, are mixed and interacting elements from the sphere of "flows" and from the sphere of "stocks". That is why the category "saving" is apparent here in an elementarily clear form—as an accounting balance of the current money receipts (incomes) and outlays (spendings) which results in a surplus, deficit or "closed" account. That is why in the given, last group, the size of income, on the one hand, and the propensity to consume, on the other (the latter naturally depends on many socio-historical factors) determine the scale and the very possibility or impossibility of "saving" by this large and heterogeneous segment of the population.

If we try now to sum up the main elements of our exposition it is best of all to single out the question of the principal internal sources of forming the accumulation fund in the developing countries. There are three such main sources if we accept the scheme of the aggregate categories proposed here: 1) accumulation of productive capital on the basis of its own movement—capitalisation of the surplus value or, to use the business parlance, reinvestment of profits; depreciation allotments are an additional fund in this sphere which allows considerable manipulation depending on the schedule of writing off, durability of the machinery employed, and so on; 2) considerable masses of "money capitals of the old type" whose owners annually, in one or another form, transfer their resources to modern business, joining in industrial operations directly (organising their own companies) or indirectly, by placing money in the stocks and shares of large-scale establishments); 3) fund of the personal savings from current incomes which is most remote (if we take its predominant form) from the process of accumulation and circulation of capital proper but which nevertheless participates in the transformation of money capital (accumulated savings) into productive capital (real capital formation).

In the economy of multisectoral societies there are also two other sources of accumulation not linked directly either with the incomes or

with capital as monetary entities. These are additional investments in the least productive sectors of the economy, particularly in agriculture in the form of growing non-monetised physical inputs (we would call this process "traditional dynamics", undaunted by the paradoxical nature of such a word combination) or labour inputs not accompanied by the use of the product. In the broad sense of the word this category also includes public works organised by the state or other collectives designed to save all resources except manpower.

Thus, we can conceive the existence of a definite "fund of savings" on the scale of the national economy, the different elements of which are marked by coefficients of liquidity on the money market and unequal elasticity under pressures for investment. The scales of real accumulation, naturally, are somehow correlated with the size of this fund. But here substantial fluctuations are possibly linked with the current and long-term factors of economic growth and economic policy. In any case the well-known postulate of Western neo-classics about the identity of savings and investments (accumulations) can hardly make sense when applied to countries where savings, income and property of the traditional type heavily outbalance profit, business incomes and capital stocks of the nation.

In short, treating savings as a mere financial counterpart of investment would bring about certain methodological confusion, since one could not thus trace the potential money and income sources of the maturing capital formation. One could also find some difficulties in analysing the reverse process of disinvestment and decumulation (which is not necessarily dissaving as well). J. M. Keynes, for example, considered excessive savings as temporarily unemployed resources, "blocked" somewhere in-between the actual consumption and real investment. Being characteristic of the developed capitalist economy in the state of a business slump, this is also true of developing countries which are at present trying to squeeze out of society the existing non-productive savings and to tap all potential resources necessary to accelerate capital formation and economic growth.

NOTES

¹ K. Marx, *Capital*, Vol. 1, Moscow, 1965, p. 598.

² K. Marx, *Theories of Surplus-Value*, Part I, Moscow, 1969, p. 107.

³ Among Soviet students of Third World economic problems Professor S. Tyulpanov, apparently, subscribes to such an approach to these most general terms of dynamic economics: in his article "Social Strategy and Economic Problems of the Developing Countries" he employs the terms "economic growth" and "reproduction on an extended scale" as synonyms and regards their operation as a single mechanism of economic progress (see *Third World: Strategy of Development and Management of the Economy*, Moscow, 1971, p. 5, in Russian).

⁴ W. Arthur Lewis, *The Theory of Economic Growth*, London, 1963, pp. 9-10.

⁵ It is in this sense that Simon Kuznets, one of the most authoritative students of the problem of economic growth among non-Marxists, expresses himself when he writes: "The capacity to sustain rapidly increasing numbers at the same or only slightly lower

level of living, in and of itself, can be viewed as economic growth" (S. Kuznets, *Modern Economic Growth: Rate, Structure, Spread*, New Haven and London, 1966, p. 63).

⁶ W. A. Lewis, op.cit., p. 9.

⁷ Classic political economy preferred the term "revenue" to describe earnings of pre-industrial social groups, while modern political economy widely uses for the same and similar purposes its equivalent—"income". These terms are applied here as synonyms.

⁸ K. Marx *Theories of Surplus-Value*, Part 1, Moscow, 1969, p. 157.

⁹ Ibid., p. 160.

¹⁰ Ibid., p. 200.

¹¹ See V. I. Lenin, *Collected Works*, Vol. 32, pp. 300-303.

¹² Karl Marx, *Theories of Surplus-Value*, Part II, Moscow, 1968, p. 480.

¹³ K. Marx, *Capital*, Vol. II, Moscow, 1967, p. 83.

¹⁴ Ibid., pp. 501-502.

¹⁵ K. Marx, *Theories of Surplus-Value*, Part 1, Moscow, 1969, p. 408.

DISCUSSION AND COMMENTS

Man and His Environment

(A ROUND-TABLE DISCUSSION OF SOVIET SCIENTISTS)

In November 1972, Soviet scientists held a discussion in Moscow on problems of human ecology. This discussion was organised by the journal *Voprosy filosofii* (Problems of Philosophy).

Among the scientists at the Round-Table were Academician P. Kapitsa, Member of the Presidium of the USSR Academy of Sciences and Director of the S. Vavilov Institute of Physical Problems; Academician E. Fyodorov, Head of the Chief Administration of the Hydrometeorological Service under the USSR Council of Ministers; Academician A. Berg, Chairman of the Scientific Council on Comprehensive Cybernetics under the Presidium of the USSR Academy of Sciences; Academician I. Gerasimov, Director of the Institute of Geography, USSR Academy of Sciences; M. Budyko, Corresponding Member, USSR Academy of Sciences and Director of the A. Voeikov Chief Geophysical Observatory; N. Turbin, President of the All-Union Society of Geneticists and Selectionists and Member of the Lenin All-Union Academy of Agricultural Sciences; Y. Ignatyev, Head of the Sector of Environmental Problems of the Council for Studying the Productive Forces under the USSR State Planning Committee.

About 40 people took part in the Round-Table discussion, including representatives of institutes of the USSR Academy of Sciences and other scientific centres in the country, heads of departments of several establishments of higher education, executives of a number of state institutions, and editors-in-chief of scientific journals. The meeting aroused considerable interest on the part of Soviet public opinion and the press.

At the suggestion of the journal *Voprosy filosofii*, the discussion of the problems of human ecology was concentrated on such problems as society and ecology; the social aspects of the ecological problem; the factors engendering the world ecological crisis; the correlation between the social, cultural and technical aspects of the ecological problem; the philosophical and cultural-historical prerequisites and ways of solving the ecological problem; the natural-science principles of the ecological problem; the development of modern science, and ecological contradictions; the problems of man's biological nature and factors of man's adaptation to the changed ecological conditions of his existence; ways and means of humanising the relations between man, nature and society; the correlation between the scientific and technological, as well as social and ecological revolutions; social and political problems of ecology and their different solutions in socialist and

capitalist societies; the ideological struggle in the world on problems of human ecology, etc.

The proceedings of the Soviet scientists' round-table discussion on "Man and His Environment" have been published in Nos. 1, 2, 3 and 4 of the journal *Voprosy filosofii* for 1973. The following review of these proceedings was compiled by I. Kravchenko, Cand. Sc. (Philol.), and I. Liseyev, Cand. Sc. (Philos.), staff members of the journal.

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Opening the meeting Professor I. Frolov, D. Sc. (Philos.), Editor-in-Chief of the *Voprosy filosofii*, said that, in discussing such problems, the idea is not so much to emphasise their general, traditional aspects, as primarily to seek ways of finding a scientific and practical solution to the new problems of the interaction between man and nature which can only be solved today as global problems. He noted that the discussion of these problems from the moral point of view is extremely important, but, of course, completely inadequate. The discussion of problems of relations between man and nature leads not only to social and philosophical, but also to many political conclusions, for example, the policy of peaceful coexistence, the consolidation of contractual good-neighbourly relations, etc. The solution of these problems may contribute to a rapprochement between nations and strengthening of world peace.

The fact that representatives of extremely varied branches of science have assembled here, said the Editor-in-Chief, emphasises yet another aspect of the problems under discussion, i. e., not only their global, but also their overall character and the need for the joint work of representatives of various disciplines for their successful solution. It confirms the important idea formulated at the 24th Congress of the CPSU which in its resolution urged scientists working in the fields of the natural, technical and social sciences to intensify their interaction.

The main thing that makes the problems discussed here so important, said Academician P. Kapitsa in his address, is their global character. In our century the solution of a number of problems can no longer be limited to one country; these problems must be solved on a world-wide scale, and they include that of the relations between man and nature.

The perception of the planetary character of these relations arose for the first time in connection with the appearance of the atomic bomb and the threat of a world nuclear war. It is generally recognised that such a war would endanger life all over the world. It is this danger that impels aggressive circles to renounce the use of nuclear weapons. Man can only live if there is equilibrium with nature. It is clear, however, that there will be no such equilibrium if our natural environment is contaminated by radioactivity.

There are three main aspects of the "man and nature" global problem: 1) the technical and economic aspect connected with exhaustion of the world's natural resources; 2) the ecological aspect connected with the pollution of the environment and the disturbance

of the biological equilibrium in the man—animate nature system; 3) the social and political aspect, since these problems have to be solved by the efforts of many, if not all countries, the efforts of all mankind.

THE GENERAL METHODOLOGICAL PROBLEMS OF STUDYING THE RELATIONS BETWEEN MAN AND THE ENVIRONMENT

The emergence of vast and complex problems of present-day human ecology means that methods of analysis must be elaborated and new ideas advanced in natural science. It was this aspect of the problem that primarily attracted the attention of the participants of the discussion.

I. Novik, D. Sc. (Philos.), Head of the Sector of Philosophical Problems of the Earth Sciences (Institute of Philosophy, USSR Academy of Sciences), expressed the idea that ecological problems show that science is unprepared for the new situation which has emerged in human society. For centuries science has elaborated means of conquering and subduing nature. Now it seems that such scientific means sometimes turn against man. New scientific methods are needed to compensate for this adverse effect.

According to Professor K. Tarasov, D. Sc. (Philos.), Head of the Department of Philosophy of the First Moscow Medical Institute, overall studies of a general theoretical and experimental, fundamental and applied, natural-science and sociological nature of each element and each form of connection in the "society—nature" system must become an indispensable preliminary condition of the urgent practical measures on a vast, world-wide scale. This means that the spontaneous changes in society, production, population and nature must increasingly give way to their development being consciously controlled.

This also means that the task of studying the given problem should not be the subject matter of one science alone, but must be the indispensable object of each field of scientific knowledge individually and of the entire complex of sciences as a whole. In the speaker's opinion, however, it is not merely a complex approach that is necessary, but a systematisation of studies which presupposes the single methodological orientation of all scientists in studying this extremely complex problem, with due regard for the dialectical principles of universal interdependence and development. The solution of the given problem thereby still more urgently requires that methods of dialectical and historical materialism be employed in present-day scientific cognition and in social practice.

The importance of a systems approach to this problem was also emphasised by V. Geodakyan, Cand. Sc. (Techn.), Scientific Secretary of the N. Vavilov All-Union Society of Geneticists and Selectionists. He suggested that the aims and objectives of science should be arranged in the following sequence: *description, explanation, prediction, control* and *creation*. This scientist holds that so far we only have an approximate description of the problem under consideration

and, regrettably, a very vague understanding of it. But we already have a desire to control it. We raise questions of regulating the birth-rate, struggling against heat liberation on the planet, etc. In this scientist's opinion it is now necessary to concentrate the efforts on *explanation* and *prediction* for the most effective subsequent solution of the problem.

The present stage of interaction between nature and society is no longer oriented on their opposition as two countervailing essences. It presupposes an organic inclusion of nature in the sphere of human activity. As Academician N. Konrad wrote, "our task in this field today is not simply to include nature in the sphere of human life, but also in the sphere of humanism, in other words, in the most decisive humanisation of all science dealing with nature. Without this our power over the forces of nature will become our curse and will deprive man of his human principle".¹

The role and new tasks of geographical science in elaborating programmes for the purposeful remaking of the environment in the interests of man were described by Academician I. Gerasimov.²

At present the biosphere is beginning to turn into a new natural object of man's regulatory activity. The natural and historically inevitable process of the biosphere's changing to a biotechnosphere was pointed out by G. Khilmi, D. Sc. (Biol.). In the foreseeable future the primary biosphere, he said, will combine with towns and large-scale technical structures to such an extent that it will become a new system, a biotechnosphere, which will develop according to peculiar and as yet unknown laws.

Many forms of man's destructive influence on nature are well known at the present time. Nevertheless these influences need to be further disclosed which is necessary for the continuous regulation of present-day relations between society and nature, particularly for the organisation of the constant control of pollution, expenditure of resources and ecological damage to nature. The solution of these problems will require the organisation of special state services and the elaboration of the scientific principles of their functions.

Even if society manages to terminate its destructive influence on the biosphere it will have to change the biosphere to a biotechnosphere by rational and purposeful activity. This change will be the result of man's conscious activity aimed at the progressive development of the environment and carried out on a scientific basis. In other words, man will have to design and create the natural and technical environment he needs.

The speaker voiced the idea that the present-day state of fundamental knowledge is as yet inadequate to solve such problems. Indeed, he said, the combination of the primary biosphere and the industrial and technical elements in a single system will engender *new systems regularities* which make no sense to the separate combined parts, i. e., to the primary biosphere and the urbanised environment, but are very important to the understanding of the whole system. Elucidation of such regularities constitutes one of the new tasks of fundamental research.

Another aspect of the question under discussion consists in the following. While changing nature, man has to take into account the properties of the primary biosphere which he will supplement with the artificially created environment of a technical origin. But simultaneously there arises a new, but very profound and important phenomenon unprecedented in nature, namely, *adaptation of the biosphere* to the new conditions under which it has been placed by man. The study of this adaptation is a new objective of science that must become a subject of fundamental research.

G. Khilmi's ideas were supported by Professor M. Kamshilov D. Sc. (Biol.), Head of the Laboratory of Lower Organisms, Institute of Biology of Inland Waters, USSR Academy of Sciences.³

A. Gorelov (Institute of Philosophy, USSR Academy of Sciences) observed that only 15-20 years ago it was generally considered that the scope of engineering and geological processes, i. e., processes resulting from man's activities, was much smaller than that of the natural processes. Today this assertion can no longer be thought absolutely correct. Here, too, we encounter a number of the adverse effects of man's activities of whose significance we are only just beginning to become aware. Industrial wastes pollute the lithosphere, pumping water into wells in oil extraction leads to earthquakes, etc. Some radical suggestions (for example, for getting rid of the wastes by discharging them into the tectonically active zones of the oceans in order that they subsequently immerse into the mantle) cannot but make one think of still greater changes in the nature of the earth.

In connection with these processes the development of the science dealing with the interaction between geological processes and human activity assumes great importance. This science might be designated as "ecological geology". Revealmment of the functional laws of the geosystem under conditions of the aforesaid interaction should be the objective of this science. This would require unification in ecological geology of some sections of practically all branches of geology having something to do with this problem. Ecological geology would include, for example, so-called medical geology (feebly developed at present) which deals with the influence of rocks on man's health.

Thus, ecological geology turns out to be part of human ecology and at the same time part of geology, forming a bridge between these sciences. The overgrowth of ecology with kindred disciplines developing in all natural sciences would be the most productive way of solving the problem of controlling the natural processes.

P. Oldak, D. Sc. (Econ.), (Institute of Economics and Organisation of Industrial Production, Siberian Branch, USSR Academy of Sciences), and D. Darbanov, Cand. Sc. (Philos.), (Department of Economic Research of the Buryat Subsidiary of the Siberian Branch, USSR Academy of Sciences) pointed out that the natural ecological processes in man's economic activity cease to develop as detached systems, and merge, developing into a single "production—environment" or bioeconomic system. The problem of controlling social production transcends the traditional economic analysis and begins to develop

into one of the most complicated scientific problems of our time, a problem of controlling the bioeconomic system.

As yet we know very little about the nature of bioeconomic systems and the requirements that have to be considered in ensuring the balanced development of the subsystems (social production and the environment). The material accumulated in this field has not, for the most part, been adequately interpreted theoretically and generalised. It may, however, be asserted that a new branch of research, namely, the theory of controlling bioeconomic systems, has begun to form at the junction of ecology and economics. It may be designated as bioeconomics. Bioeconomics rests on the results of research in the three basic fields of knowledge: natural, social and technological sciences. At the same time it has its own object, namely, studying the relations between the rates of increase in production, the level of technology and the quality of the environment. (Upon attainment of a certain scale of production, the requirement for preserving the quality of the environment may only be met on the condition that the rates of increase are strictly coordinated with progress in the technology of production). On this basis it is possible to construct a bioeconomic programme, a research project, aimed at obtaining the necessary scientific information and sufficient of it to solve the problem of choosing the most preferable variant for distributing the available resources between those which are to be used for expanding production and those to be used for raising the level of technology. Such a programme realises the systems unity of the structural, functional and genetic aspects of knowledge, the unity of empirical, theoretical and applied research, and attains an integrity, analytical nature and constructiveness of approach. In this case a variant should be considered preferable that ensures the solution of urgent social problems, the achievement of the most important aims in the foreseeable future, and the preservation of the quality of the environment within the limits of some maximum permissible parameters.

We are on the threshold of creating a new science, said *M. Budyko*, Corresponding Member, USSR Academy of Sciences, and we might designate it as *global ecology*. This science is the elaboration of the global problems which we are discussing here. Problems of a wide range of natural and social sciences intermingle in it, and their solution therefore requires an extensive, overall approach which practically cannot be achieved by individual scientists or even by individual groups of scientists from different institutions.

The speaker mentioned the attempts to organise work on global ecology in the USA where a research group has been set up at the Massachusetts Institute of Technology. Appraising the work of *Forrester*, *Meadows* and other scientists in global ecology, he emphasised that this work represents in many respects an interesting attempt at a numerical modelling of the natural and economic conditions of the future. It would be very dangerous to renounce such an approach to the problems of global ecology just because the American authors have, in our opinion, allowed a number of errors to occur. We must

do our own research in this field which will enable us to obtain important practical results.

The problems of regulating the relations between the biosphere and mankind are so vast that they largely change the entire structure of science, noted *N. Reimers*, D. Sc. (Biol.), Head of the Department of Ecology of the Central Research Laboratory, Chief Administration of Hunting and Preserves under the RSFSR Council of Ministers. Science is taking on one more very important task, namely, that of maintaining a balance in the relations between mankind and the outer world. This new turning point in the development of science requires a radical change in its primary organisational forms. In addition to the analytical branches of science and the branches which arose at the junctions of two or three sciences, synthetic branches of science are emerging, and the inevitability of their emergence was foreseen by Karl Marx. Reorganisation of science and the coming of an era when relations between society and nature will be controlled are inevitable because all the achievements of scientific and technological progress and culture may prove useless if there is no harmony in the relations between mankind and the ecosphere of the Earth.

The participants in the discussion were unanimous about the fact that the new trends in ecological research must necessarily constitute a fusion of natural, technical and social sciences. At different times and in studying different problems the leading role is likely to be played by physicists, or mathematicians, or biologists, or chemists, etc. But the organising, integrating role must always be played by philosophy. This role must consist in a methodological unification of particular natural-science disciplines and theories, and in elaborating, from the positions of dialectical and historical materialism, a single conceptual model for solving the problems of the interaction between man and nature.

POPULATION, RESOURCES, ENVIRONMENTAL POLLUTION

All the main aspects of the crisis phenomena that have arisen in the ecological situation of modern man were discussed in detail at the Round-Table.

The processes of the numerical growth of the population, pollution of the environment and exhaustion of resources, as Academician *P. Kapitsa* pointed out, are described by geometric progression and are expressed mathematically in time by an exponential function. It is a characteristic feature of these processes that in the final outcome they lead to such an acceleration of their development that they assume the character of an explosion. He observed that there are also exponential regularities in demographic processes. Today the world's population numbers some 3,700 million. If it continues to increase at the same rate as it has done during this century, in 700 years the population of our planet will be so dense that there will be one person for every square metre of the Earth's surface. This is, of course, impossible, said the Academician, and the process of increasing human propagation will, apparently, cease. When and under what conditions this will

happen and how that will affect civilisation is one of the most important global problems of the immediate future.

B. Uralis, D. Sc. (Econ.) (Institute of Economics, USSR Academy of Sciences), recalled the results of the research in the dynamics of the Earth's population throughout the existence of mankind: at first the rate of increase was negligible, but during the transition from the paleolithic to the mesolithic, neolithic, iron and bronze ages the rates of increase in population continuously grew and now have reached 2 per cent per annum. Today, he said, we have the highest rate of increase in the world's population. Henceforward these rates will decrease.

The Soviet demographer mentioned that in a letter to Karl Kautsky (written as far back as February 1, 1881) Friedrich Engels said that in the future communist society people would learn to regulate the production of human beings like that of things. Today, the speaker said, it appears that about 30 per cent of married couples all over the world are already regulating the number of children in their families. The number of such families will increase and will gradually reach 100 per cent.

In answering the question of whether mankind is threatened with a demographic explosion, V. Geodakyan, Cand. Sc. (Techn.), emphasised that the demographers who frighten mankind with this kind of prediction forget one very essential factor, namely, the existence of a mechanism of negative feedback which regulates the increase in population, and, as is well known, negative feedback cannot lead to an explosion. Moreover, it is quite enough just for the last link of the feedback to be negative, while the links preceding it may be positive.

The participants in the discussion expressed various opinions about the possibility of making up for the lack of the restorable and unrestorable resources of the Earth.

According to Academician P. Kapitsa, science can prevent the global crisis connected with the exhaustion of raw materials by transferring industrial production to so-called "closed processes", as is the case in nature where nothing is thrown out since everything is used again. From the scientific point of view closed processes are quite feasible, although extremely complicated. In effecting these processes the main problem will be the necessity to increase expenditures of energy. Mastery of closed processes on a global scale will become possible, therefore, only when man has sources of energy of practically unlimited power which only thermonuclear energy can be today.

Considerable attention was devoted to the problem of resources by Academician E. Fyodorov who expressed his doubts as to the correctness of the conclusions drawn by many specialists in the West. As is well known, he said, all the estimates to the effect that the unrestorable natural resources are being exhausted have proved erroneous. Incidentally, the prospected resources of all the main minerals in the world have been increasing as a whole and per capita. Of course, this process is not endless and it will cease at some point.

However, we must not forget the other process, namely, the increase in our ability to manufacture anything from any raw material. This process is rapidly developing.⁴

THE CHANGE IN MAN'S ATTITUDE TOWARDS NATURE

This problem was dealt with by A. Doskach, Cand. Sc. (Geogr.) (Institute of Geography, USSR Academy of Sciences), N. Reimers, D. Sc. (Biol.), and O. Gusev, Editor-in-Chief of the journal *Okhota i knotnichye khozyaistvo* (Hunting and Hunting Facilities).

In their addresses they observed that modern man is an active principle with respect to his environment. The special feature of the present stage is that in addition to the as yet considerably growing spontaneous "pressure" of technological progress on the environment and in addition to the consequences of the growing technicalisation of the economy, which are alarming and harmful to man and the biosphere as a whole, the chances of controlling the dynamics of the biosphere itself and the processes of technical influence on it are continuously increasing.

An important theoretical problem that scientists and practical workers are faced with in their endeavours to remake the biosphere is whether this remaking will be based on the cognition and discoveries by science of natural regularities and fundamental laws of nature or it will be a case of new laws of development of the biosphere. We cannot, of course, deny the possibility of occurrence of deep qualitative changes while we disturb the natural and relatively balanced correlations in transforming nature. Their modelling, prognostication and evaluation will be important factors in designing systems of control. The crux of the matter here is not in adapting the biosphere to the growing pressure exerted on it by technology, but in creating such balanced relations as would be favourable to "both sides" and would answer the humane purpose of conserving and remaking nature, set by man.

Rational control of the biosphere means ensurance of its working reliability with preservation of the systems self-regulation at the upper limit of productivity. This limit has not been as yet reached, but it is well known that the existing reserve is incomparable with the numerical growth of the anthroposystem (number of people and especially their summary requirements). Control of the anthroposystem is an extremely complicated matter, but it is absolutely necessary and, what is most important, extremely urgent because in this case self-regulation is impermissible.

The humanistic aim of solving ecological problems requires the elaboration of a particular attitude towards nature. The participants in the discussion carefully considered the point of view on the interaction between society and nature which corresponds to the world outlook and aims of socialist society.

O. Gusev suggested that the concept of the "strategy of nature enrichment" be introduced into science. This concept implies such an attitude towards nature with which the process of remaking the

natural environment, if this process is directed consciously, with due regard for the great laws of nature, the complex interrelations in the biogeocenoses and all possible side and remote effects, may and must result in man's prosperity on Earth. Nature must not be regarded as an ideal system, for it is a well known fact that its ability to produce the things that man needs is relatively not very great, but it can be increased severalfold. The conquest of nature, not its destruction, but fulfilment of mankind's dream of man's complete harmony with nature—was the way the speaker summed up the implication of his address.

THE PROBLEMS OF MAN'S ADAPTATION TO THE NEW CONDITIONS OF THE ENVIRONMENT

Professor *G. Tzaregorodtsev*, D. Sc. (Philos.), Head of the Department of Philosophy, USSR, Academy of Medical Sciences, spoke on the influence of "technicalisation" of the environment on man's health. He emphasised that the range of adaptive potentialities of the human organism is limited, despite their lability. Due regard for the biological norm of the organism's adaptive potentialities is an important methodological principle of any study in the field of interaction between the organism and the environment.⁵

Speaking of the necessity of studying the adaptation of living beings to various forms of pollution, Professor *N. Naumov*, D. Sc. (Biol.) (Moscow University), pointed out the possibility of acquiring resistance to such unfavourable conditions. In his opinion, profound studies on the regularities of adaptation to pollution may open up new practical possibilities for reducing or even eliminating the danger. It must be remembered, however, that the danger of pollution remains and cannot be ignored. Moreover, it is extremely important to elaborate all aspects of the problem, from control to means of protection and adaptation. It is also necessary to work out fundamentally new approaches which may be discovered by genetics.

Voicing disagreement with *N. Naumov*, Professor *G. Stepanyuk*, D. Sc. (Medicine), Head of the Sector of Human and Animal Physiology, Department of Biology, All-Union Institute of Scientific and Technical Information, emphasised that in order to solve the problem of human adaptation not only biological, but also social factors must be taken into account. I take the liberty of asserting, he said, that, regrettably, the point of view is still current that man can allegedly adapt himself to the influences of chemical elements, just like animals. It cannot be said that this proposition is wrong from the biological point of view, but it is not humane to man. Where it is a question of the adaptation of an animal, the adaptation takes place during the course of many generations as a result of the action of mechanisms of mutation, natural selection and heredity. Such a proposition cannot be applied to the development of the adaptive potentialities of man.

Even in principle, when we speak of the concept of adaptation, we point out that it means change, adjustment of the living being to

conditions of life. But is such a formulation of the question applicable to man at all? Change means going beyond the established physiological parameters. For man this spells pathology. Can we allow man to adapt himself to a new environment by going through a stage of pathology? Obviously not. The ways and means of man's adaptation to changes in the environment must be analysed thoroughly.

Man adapts himself to the environment by changing it in conformity with his requirements and his interests. The specific feature of human adaptation is that it is active adaptation, whereas biological adaptation which undoubtedly also takes place in man must be considered in the second place.

In the course of the scientific and technological revolution man's relations with the natural environment of his life and work rapidly become complicated and admit less and less of the uncontrollable processes of the influence on nature. The example of developed capitalist countries, which were unable and for a long time made no attempt seriously to intervene in the spontaneously forming relations between society and nature and thus unable to prevent the destruction of the latter, shows how dangerous to man and how largely ecologically irreversible the results of uncontrolled development of industry can be.

Socialist society adheres to fundamentally different positions with respect to nature: it consciously organises the processes of interaction with nature.

TECHNICAL AND ECONOMIC ASPECTS

The participants of the meeting carefully considered the problems of purifying the environment, preventing harmful results of man's activity and changing man's environment.

Academician *E. Fyodorov* expressed the conviction that it is possible to prevent substantial pollution of the natural environment. However, a certain influence of man's activity on the geochemical and thermal balance of our planet is inevitable. He mentioned *M. Budyko's* opinion that heating of the Earth as a result of man's activity may cause changes in the climate in the next few scores of years. Of course, measures can be found to compensate for the changes in the thermal balance of the Earth, for example, by regulating cloudiness. But in any case these would be very extensive measures involving all of our planet.

Academician *P. Kapitsa* called attention to another possibility for ensuring nature protection, namely, by making use of the natural purification mechanisms. In his opinion, if ecology has so far studied the existing processes of equilibrium in nature, now it will have to seek new conditions of equilibrium. As an example of this quest, he dealt with the problem of Lake Baikal.

Several examples of the positive effect produced by purification structures built in the USSR were cited by Professor *G. Sidorenko*, Director of the Institute of General and Communal Hygiene, USSR Academy of Medical Sciences. The scientists of this Institute and

engineers of the Shchokino Works elaborated a complex of measures for radically reducing the pollution of the atmospheric air; this complex comprises 168 different proposals, from changing the technological process of building purification structures, pressurising the equipment, eliminating unorganised discharges, etc., to purely organisational problems of regulating the work of the existing equipment today. Owing to the work already done, no unfavourable effects caused by this Works on the environment are now observed. Beyond the limits of the sanitary and protective zone the pollution of the atmospheric air does not exceed the permissible hygienic norms.

In solving this problem, however, it is not sufficient merely to build purification structures. This is the opinion of *E. Ignatyev*, Head of the Sector of Environmental Problems of the Council for Studying the Productive Forces under the USSR State Planning Committee. As is well known, he said, increasingly more purification structures are going to be built in the Soviet Union in the immediate future. This is a necessary and inevitable solution to the problem of pollution of the environment, but we must not ignore the fact that it requires very substantial expenditure. For example, at the aforesaid Shchokino Works the cost of the purifiers amounts to 40 per cent of the basic production funds of the Works. It should also be taken into account that the concentration of production gives rise to concentration of the discharges whose methods of purification have not as yet been elaborated. Thus, the problem of purifying the environment cannot, apparently, be solved simply, by employing one, even if very effective method. An overall programme of controlling the pollution of the aqueous and aerial basins must be elaborated.

Another course that may be taken in elaborating the means of ecological protection is, in the speaker's opinion, a more rational distribution of the productive forces. In capitalist countries the productive forces develop and are distributed spontaneously. We plan the development of the productive forces and distribute production in such a manner as to make it yield the greatest economic effect. At the same time the distribution of industry should be planned so that it may do the least harm to nature and man, in which case full and overall utilisation of raw materials may be achieved. Thus, we will plan and create not separate wasteless types of production, which are not as yet feasible today, but *wasteless territorial production complexes*. This is practicable today.

The problems of urbanisation of the landscape and the necessity of regulating the biochemical cycles in present-day towns were dealt with by Professor *N. Naumov*. I do not regard urbanisation as necessarily harmful, he said. Concentration of a large part of the population in towns is in many respects even useful, although it is inevitably accompanied by a number of undesirable phenomena.

The danger of urbanisation is now considered primarily from the point of view of disturbing the biochemical cycles. Towns receive products from vast areas, removing a great number of substances without returning them because after utilisation the bulk of these substances become sewage and waste, thereby disturbing the bioche-

mical cycles in rivers and oceans. These disturbances wrought by urbanisation may be eliminated by processing the sewage and waste into fertiliser. But this problem requires serious elaboration, and a good deal has yet to be done.

Studies of local crises in urban environment have shown, said *O. Medvedkov*, D. Sc. (Geogr.) (Institute of Geography, USSR Academy of Sciences), that the problem does not come down only to pollution and "wasteless technology". The difficulties are connected not with the metabolism of systems, but with their growth. These difficulties are the seamy side of the successes of the scientific and technological revolution, when the stream of innovations is not backed by necessary structural urban reorganisation. They are but partly due to a shortage of means and for the most part arise as a result of the slow perception of the new meaning and scope of the changes. From the example of city planning one can see how often the reorganisation lags behind the rise in the living standard, the increase in the stream of passengers, motorists, buyers, etc. The precipitate alternation of innovations gives rise to additional stresses in the life of the people connected with a necessity for additional training, change in occupations, places of work and habits. The costs of adaptation to the changed conditions of life are growing.

The suggested technical prospect of more and more complete habitation of artificial spheres, which does not take into account alternative social solutions, can hardly satisfy us completely. Technical systems do not have the longevity and reliability that nature has elaborated over millions of years. For example, obstacles are discovered to unlimitedly profound reorganisation because the atmosphere is heated as a result of the work of all the power installations.

Having ascertained the connection of unfavourable changes with the "growing pains"; we must not exclude the solutions that consist in the transition to optimum rates of growth. Self-regulation of the rates of growth in socialist society is in fact already taking place. Well known, for example, are the measures to reduce the rates of expansion of the largest cities in the USSR.

A. Medunin, Cand. Sc. (Phys. & Math.), (Institute of Economics of the World Socialist System, USSR Academy of Sciences), called attention to the fact that, whereas pollution of the environment is the No. 1 problem of the ecological crisis, it harbours another, particular problem which requires especially urgent solution, namely, revelation of the most harmful chemical wastes of production (including mutagens) and the fastest possible elimination of these substances from the chemical discharges of industry and transport.

At the same time he emphasised that not only technical sciences, but also the humanities were very important to the solution of ecological problems. Since these very problems are of a complex nature, it stands to reason that their study and solution require complex approach. An inadequate development of philosophical and sociological aspects may cause not only ideological harm, but also direct damage to nature. It will apparently be no exaggeration to say that philosophy, sociology and the science of science also exert an

influence on the productive forces, not directly, as the natural sciences, but intermediately. The social sciences can participate in forming public opinion, enhancing the sense of responsibility for nature in specialists in concrete sciences and workers of industry, and help in elaborating a new type of ecological thinking which directly corroborates and develops on a new level the Marxist dialectical principle of universal relationship and interdependence of all phenomena in nature.

Moreover, while solving the methodological problems of coordinating the sciences in studying the biosphere, the social sciences can substantially contribute to the elaboration of various approaches to the solution of the problems under consideration, take part in elaborating a general strategy of research in the biosphere as a complex dynamic system, and reveal the priority programmes of studying and overcoming every aspect of the ecological crisis. Research in the field of political economy and concrete economics, especially after introducing questions of the cost of natural resources into the scientific turnover and the practice of the national economy of socialist society, may bring forth useful recommendations directly to the designers and developers of new technology.

THE SOCIAL ASPECTS OF THE ECOLOGICAL PROBLEM

The detailed discussion of the natural-science factors of the world ecological crisis and its techno-economic aspects attracted the attention of the participants to the analysis of the social causes of its emergence. All the speakers arrived at the opinion that the main social cause of the crisis was the particular approach to nature that developed during the period of formation of bourgeois relations and finally took shape in modern capitalist society.

The exchange of substances between man and nature has always inevitably caused disturbances in the ecological balance initially expressed in exhaustion of the natural resources. Before the onset of the modern stage of mankind's industrial development, V. Kormer, I. Kravchenko, Cand. Sc. (Philol.) and R. Sadov (Editorial Board of *Voprosy filosofii*) pointed out in their joint report, these disturbances were of a limited spatio-temporal character, affecting only individual aspects of the relations between man and nature and being overcome by the establishment of a balance in the man—nature system on a new qualitative level corresponding to each new level of development of civilisation.

During the period of development of modern science and technology, the present-day industrial development, the emergence of ideas of the unlimited potentialities of the mind, science and technology is accompanied by the idea of the possibilities of man's boundless activity in his relations with nature. These very relations are regarded as the interaction of the activity of a sovereign subject, man, and the object of this activity, nature. The industrialisation of European society (and then societies of other regions as well) could not but result in an ecological crisis. However, it became inevitable not

because utilisation of technical devices in the process of exchange of substances between man and nature of itself always leads to a catastrophic disturbance in the balance of natural forces and resources, but for the following reasons. Firstly, the capitalist, historically initial type of industrial development is inevitably attended by social-economic and cultural aims to absolutise the development of technology as some self-sufficient factor of development, which in the end subjugates both man and nature. Secondly, this type of development engenders a certain approach to society itself and man as an object of unlimited, in force and profundity, influence of the cognising and active subject. The sources of the present-day ecological situation rooted in the very organisational structure of modern social production are quite dissimilar.

On the one hand, there is, in fact, the capitalist form of organisation of society, the egotistical attitude of bourgeois society towards nature, dictated by a striving to extract maximum profits, a subordination of the interests of society to private interests, an antagonism of private interests both within the limits of individual countries and mankind as a whole.

On the other hand, it is the attitude of man towards nature, consolidated and objectified in the whole structure of human culture, engendered by transferring the principle of the cultural development of mankind (the self-development of human powers as an end in itself) to the sphere of exchange of substances between man and nature, which never was and can never become a sphere of free play of human powers and abilities.

In connection with this it should be emphasised that any attempt to find the sources of modern ecological contradiction in the very fact of existence of machinery and in technical development is a deviation from the principles of a scientific approach to the phenomenon under consideration. Such an approach transforms the threat of an ecological crisis into a kind of an inexorable feature of all of human history.

The social-historical causes of the ecological problem were likewise appraised by Professor Y. Rychkov, D. Sc. (Biol.) (Chairman of Section of Population and Evolutionary Genetics, Scientific Council on Problems of Genetics, USSR Academy of Sciences). One of the parameters for determining the type of culture, he pointed out, is the idea of man's place in the world system. The conception of man as the crown of creation, master of nature and the final stage of evolution, has formed in the history of European bourgeois civilisation. In this system of thinking man is placed above the rest of the world, and in the oriental system outside of it, which is practically the same thing.

The aforesaid parameter of West European civilisation is connected with another parameter, namely, the development of this civilisation has always proceeded according to the principle of denying a balance with the environment. This denial was also projected to the attitude towards the other peoples as components of the environment in the general sense of this term. It was veiled by achievements which nourished faith in the might of the European mind and, to a still

greater extent, by a sham claim to the right and actual possibility of exploiting the natural resources of the colonies and dependent countries. This type of development by denying a balance with the environment ensured at the time the tremendous progress of the economy, science and culture, but naturally led to the state we are discussing as a crisis today. It is characteristic that, in the measures now adopted and planned in order to stabilise their own environment, the leading countries of the West are resorting to the resources and, consequently, the environmental reserves of other countries or international reserves, i. e., the total reserves of mankind. Clearly, this is but a makeshift and not a positive solution to the problem.

The professor emphasised that the ecological crisis did not start precisely in the developed capitalist countries by mere accident, and that the very type of capitalist society with spontaneously regulated private enterprise, private ownership spreading also to the environment, favoured spontaneous cultural and economic development and equally spontaneous influence on the environment.

All the speakers rejected, as two extremes, the aggressively transformative attitude towards nature and the striving which is now unrealistic, to completely abandon all attempts at interfering with the natural processes. The emergence and deepening of the ecological crisis, as was repeatedly emphasised by the participants in the discussion, is historically conditioned, not by the machinery itself (although this, too, has negative ecological potentials), but by bourgeois relations. Capitalism as a mode of production and a generator of social, ethical and psychological guidelines and economic interests and imperatives is the major and direct cause of the ecological crisis. The aggressively rapacious attitude towards nature, so obvious in capitalist society, was appraised by the participants in the discussion as a manifestation of the very essence of the society which engenders ecological conflicts in addition to social, class and racial conflicts, as well as conflicts between generations, cultures, etc.

Even in the West, Academician P. Kapitsa observed, a number of sociologists and economists hold that technical and economic problems can be solved on a global scale only on the basis of a socialist economy. Such, for example, is the statement made by Sicco Mansholt⁶, a prominent Dutch economist. Of course, there are also other trends whose representatives assert, for example, that capitalist society has so far found in itself latent self-regulation potentialities by establishing prices and taxes and that ostensibly the global nature protection problems can also be similarly solved today. However, such reasoning is at variance with reality.

It is undeniable that a reliable basis for solving global ecological problems is provided by socialist organisation of the national economy.

We are aware, said Academician A. Berg, that during the history of mankind there have never as yet been periods when living beings have existed, engendering only favourable conditions for themselves and doing no harm to the environment. I therefore agree that a change in man's attitude towards the environment should be considered an

extremely important task because living without believing in the possibility of improving the conditions of life makes no sense. We must not fail to exert every effort, and this lies with us, to make the social conditions and, consequently, the biological conditions of life on Earth favourable to life and peace, rather than war and mutual destruction. Marxist-Leninist theory holds that we can and must create such conditions that life should continue and develop not at the expense of a weaker and more poorly organised environment. We must create conditions favouring joint and friendly existence.

The participants in the meeting, Academicians E. Fyodorov, P. Kapitsa, I. Gerasimov and many others, unanimously supported the idea that peaceful coexistence of states with differing social systems is a *sine qua non* for solving the ecological problems and overcoming the ecological crisis. They appraised the surmounting of this crisis as a new sphere of peaceful competition between the socialist and capitalist systems, competition for a clean environment.

RELATIONS BETWEEN NATURE AND SOCIETY IN THE USSR

The participants in the discussion noted that the rapid progress of science and technology, the upsurge of the economy, the scope of industrial development and housing construction, and the vast-scale cultivation of new areas presuppose a new level of relations between man and nature at which socialist society has to solve in due course and effectively the naturally emerging problems of its relations with nature.

The speakers were gratified to observe that the activities of the state and the public in this direction have of late considerably expanded. The successive series of decisions and measures in this field were furthered in the Enactment of the USSR Supreme Soviet "On Measures for Further Improving Nature Protection and the Rational Utilisation of Natural Resources" and the Decision of the Central Committee of the CPSU and the USSR Council of Ministers "On Increasing Nature Protection and Improving the Utilisation of Natural Resources" passed in 1972. All the participants in the discussion emphasised the great importance of these documents which envisage a wide range of concrete measures and formulate ways and means of solving the problems concerning relations between man and nature which face the country.

Many addresses were devoted to an analysis of various theoretical and practical aspects of these problems.

Academician P. Kapitsa, in particular, emphasised the considerable achievements in the protection of the nature of Lake Baikal. The example of utilising the waters of Lake Baikal assumes international importance because here it is possible to prove by experience that, unlike capitalism, socialism can solve this kind of large-scale ecological problem.

E. Ignatyev recounted the practical solution of the economic problems engendered by the increasingly complicated interaction between society and nature in the USSR. He emphasised that

conservation of the environment is becoming a vitally necessary sphere of socialist society's activity. Since this is so, he said, it is only natural that under our definite situation this sphere of activity must be planned in a certain manner. The planning must cover the financial, material and man-power resources necessary to carry out the programme of conserving and improving the environment. Moreover, the planning must be done with due regard for the further development of the country's productive forces. Successful planning of this activity requires a serious scientific basis.

The speaker emphasised the importance of the article of the Enactment of the USSR Supreme Soviet reading that from now on the measures on nature protection, the conservation and improvement of the environment (this is a broader concept) will be included in the annual and five-year plans for the development of the national economy of the USSR and will be mentioned in the special part of the long-term plan for the development of the national economy now being elaborated.

When one personally has to plan the conservation and improvement of the environment, said the speaker, one finds so many problems requiring a scientific solution that at first sight they seem to exclude the very possibility of such planning. However, in socialist society there exists a real possibility to work out a practical way of solving the problem of the environment. We are helped in determining this plan by the advantages of the socialist mode of production combined with scientific and technological progress. How to realise these advantages concretely, how to plan the range of measures that have to be carried out using these advantages, is a very serious and very important problem.

We have calculated, the speaker continued, that the losses inflicted on the USSR by the cases of irrational utilisation of natural resources and incorrect influence on the environment annually amounts to many scores of milliards of rubles. However, this sum can hardly be returned to the national income today without corresponding preliminary expenditures on the measures that would enable us to avoid these losses. Today our expenditure on the conservation and improvement of the environment amount to no small sum, namely, about 2.5 per cent of the national income. Have we produced the effect which we could produce under our conditions, in the socialist system of economy, with our system of planning, under conditions of public ownership in the means of production and the natural resources? As yet apparently not. The reason for this is that we are not as yet taking a sufficiently wide range of measures on the necessary *scientific basis*.

The speaker therefore emphasised the extraordinarily great practical importance of philosophical discussion of problems of ecology. I regard it as exceptionally important, he said, that the journal *Voprosy filosofii* has in a proper manner raised the question of the necessity of a scientific approach in accordance with which the economy could develop with a simultaneous improvement of the environment as the natural basis of material production and development of society. This

is particularly necessary in planning the development of the Soviet national economy in the long term, namely, up to 1990.

The emergence of new factors affecting man's health raises entirely new problems in the field of medicine and the organisation of public health services. These problems and ways of solving them in the Soviet Union were described in detail by S. Chikin, Deputy Minister of Health of the RSFSR. Those who are responsible for the construction of new enterprises, he said, are now required to devise such technological processes as will take into account man's physiological potentialities and will not lead to destruction of the environment to which man has adapted himself. This means that the scientific and technological revolution must be utilised to overcome man's ecological dependence on machines and develop technologies and labour processes which will not lead to a deterioration of man's health.

For socialist society such an approach to the solution of this problem is quite natural because the idea of developing the productive forces and scientific and technological progress is primarily subordinated to the problem of further improving the conditions of man's life, his health and physical well-being.

This is particularly clearly expressed in a number of state measures adopted in the USSR over the last few years. In June 1968 the Soviet Government passed a decision on the further development of public health services and medical science. This document envisages measures not only for developing the material base of public health services, but also for further improving the environment. Concretely, this is expressed in the fact that every head of an industrial enterprise must take measures to reduce to a minimum the discharge of harmful substances into the environment. For this purpose the enterprises must have well equipped laboratories which make it possible to control the chemical composition of the discharges into the atmosphere and reservoirs, and improve the purifying structures in order that they may hold back a maximum of harmful chemical substances.

In 1969 the USSR Supreme Soviet approved the "Principles of Legislation of the USSR and Union Republics on Public Health". This legislative enactment is of enormous importance, also in dealing with problems of the protection of the environment. It establishes the responsibility of heads of departments and enterprises not only for the proper sanitary state of the production premises, but also for carrying out measures to prevent pollution of the environment with industrial wastes harmful to the health.

The directives of the CPSU on these problems devote special attention to extending the efforts of improving the sanitary state of inhabited localities and the environment, emphasise the necessity of expediting the construction and modernisation of purifying facilities for industrial and everyday sewage, gas scrubbing and dust catching installations, and envisage measures for reducing the pollution of the air in towns with automobile exhaust gas and of increasing the protection of the country's water resources. The laws on nature protection stipulate that not a single enterprise, shop or installation should be put into operation if it has no special purification devices.

As the Deputy Minister of Health of the RSFSR recounted, the measures already taken in Moscow have made it possible, during the period of 1961-1971, to reduce the dust in the capital's air by 80-83 per cent and the pollution by sulphurdioxide by 66-75 per cent.

The Soviet Government passed a number of decisions on the protection of the basins of Lake Baikal and the two rivers, the Volga and the Ural. The measures envisaged are unequalled anywhere in the world since in fifteen towns alone located on the Volga and its tributary, the Kama, purification structures will be built at industrial enterprises at a cost of more than 300 million rubles. Systematic collection of the oil products finding their way into reservoirs from ships was begun in 1972. By 1980 the discharge of uncleaned industrial and everyday sewage will be discontinued all over the vast territory through which these rivers flow.

The problems of planting trees and shrubs in towns are being solved as a real social problem. The country already has garden-towns where vast parks in considerable measure purify the polluted air. For example, in Kiev, the capital of the Ukraine, there are 19 square metres of forest per capita, which is 2-3 times more than in many capitals in the developed countries.

These examples offer graphic evidence that ecological problems can be solved if overall research is carried out, the work is coordinated on a state level and the public is enlisted in dealing with this most important problem.

The participants in the discussion made a number of concrete suggestions in this direction. *M. Budyko*, Corresponding Member, USSR Academy of Sciences, suggested that the problem be considered of organising research in global ecology at the USSR Academy of Sciences and of publishing the studies containing a detailed analysis of the method of numerical modelling of the natural conditions of the future and the prospects of its application. These suggestions were actively supported by all the participants in the meeting.

A. Doskach, Cand. Sc. (Geogr.), emphasised that even now it is necessary to work out a conception of the general plan for recreating natural scenery in the USSR. The aim of such a plan would be primarily to create and conserve the best possible environment for man, develop methods of utilising the natural resources ensuring their extended reproduction, and devise an appropriate scientific and technical "control desk" to regulate the complex system of processes, correlations and chain reactions arising as a result of remaking the natural environment and the technical influences exerted on it.

In Professor *N. Naumov's* opinion, we need an appropriate state committee to coordinate the work of environmental protection on a country-wide scale. Moreover, it should not only coordinate research, for this is only one aspect of the problem, but should also enjoy broad prerogatives in controlling practical measures for the protection and improvement of the environment. Purposeful and carefully coordinated work of all ministries and departments, as well as all scientists, will make it possible to utilise the advantages of the socialist system

not only for protection of the environment, but also for its progressive improvement.

Implementation of all these tasks necessarily requires control and supervision. Evidently, the special services controlling pollution of the environment must be supplemented by services of control over design, planning and development of various branches of the economy with due regard for the complexity of ecological phenomena. It is apparently necessary to draw up integral economic plans the fulfilment of which should be controlled just as the observance of the rules of technology is necessary in any branch of production. All this requires training of specialists with a broad outlook for work in the State Planning Committee, as well as with narrower vocations for work in ministries and even large enterprises and establishments.

The new forms of popularising nature protection, which the speaker recommended, aroused the particular interest of the participants. This kind of propaganda is necessary, said the speaker, in school in the first place, not necessarily as a special subject, but by the introduction into all subjects—especially, literature, chemistry, physics and geography—of material dealing with ecological problems from all angles. In the speaker's opinion, it is necessary to include appropriate subjects in the curricula of all institutions of higher learning in any way dealing with the exploitation of the natural resources in order to give all specialists orientation in these problems.

The Soviet biologist recounted the successful experience of scientific cooperation in the field of nature protection in the Council for Mutual Economic Assistance and emphasised that this experience of the joint work of the scientists in the socialist countries is just another proof of the leading and decisive role of socialism in this field as well.

THE ASPECT OF INTERNATIONAL COOPERATION

Overcoming the ecological crisis is a global, planetary problem. This is why the tasks connected with overcoming this crisis are inevitably linked with the solution of problems of international cooperation and interaction in the field of ecology, which in its turn is conditioned by peace on earth. The participants in the Round-Table discussion dealt with the various aspects of this cooperation.

The problem of environmental protection cannot be effectively solved, said *V. Chikin*, Deputy Minister of Health of the RSFSR, if it is dealt with only by individual countries. The atmosphere is becoming polluted on a global scale. It is a well-known fact, for example, that over the last ten years the pollution of the atmosphere around the Hawaiian Islands has increased by 30 per cent although on these islands there are no large industrial enterprises.

Academician *P. Kapitsa* called attention to the fact that no effective methods of international action to prevent the pollution of the environment have as yet been found. This can be seen from the example of the countries which, considering only their own narrow national interests, set off nuclear explosions in the atmosphere and

thereby contaminate it with radioactivity. Evidently, an authoritative international organisation will have to be set up to exercise effective supervision of the implementation of precautionary and other measures necessary for the well-being of the planet as a whole.

Let us take a hypothetical example. One of the neighbouring countries turns out a product without polluting the water. In another country production involves such pollution. In this case the cost of production in the former country will be higher than in the latter. It is clear that all countries need a clean ocean full of life and that preservation of the cleanliness of its waters is an international requirement. A problem consequently arises to induce the country that pollutes the water to adopt the more expensive technological process, although this is at variance with the interests of the economic forces which dominate it, since by turning out a more expensive product this country may lose the market and, moreover, will have to spend capital on new equipment.

The problems of international relations in the sphere of ecology were dealt with by G. Khozin, Cand. Sc. (Hist.) (Institute of the USA, USSR Academy of Sciences). Over the last few decades, he said, certain changes have occurred in international relations, favouring the organisation of cooperation on problems of the environment. These changes are the following: realisation of the baneful ecological results of a general nuclear war by the governments and people of many countries; the apparent increase in the interdependence of the national economic activities of many countries and the extension, for this reason, of intergovernmental cooperation; the reappraisal of the criteria and symbols of power, as well as the potentialities of states, since today the power of a state is not associated with the size of its territory, but with the level of its industrial, scientific and technical development and the perfection of the state machinery; the closer interdependence between the problems of domestic and foreign policies; the increased interest of states in finding ways of solving global problems, such as preventing the spread of new types of weapons, use of the ocean's resources, exploration of outer space, rational utilisation of natural resources, etc.

It should be pointed out that the problem of conserving the environment has a very important specific feature, namely, the community of the object of constructive activity of the states, which is the planet as a whole. This is why only the united efforts of the states can be the most rational approach to the solution of this problem. The joint activities of the states expressing their willingness to unite their efforts for the solution of this complex and multifaceted problem may consist, according to the speaker, in the performance of the following main functions:

firstly, the exchange of information, collection and analysis of data on various physical phenomena ("monitoring"), consultations, presentation of expert appraisals at the request of the governments of interested countries, elaboration and implementation of national, bilateral, regional and international programmes, coordination of international activities, joint planning and financing;

secondly, elaboration and establishment of appropriate international norms and an informational base necessary for such activities; introduction of norms which regulate the activities of governments and industrial firms; distribution of expenses and profits connected with implementing ecological programmes;

thirdly, observance of the established norms and settlement of conflicts. This function comprises control of the observance of established international norms by means of special technical devices, introduction of new standards and norms and ensurance of their observance, organisation of international agencies to consider and settle conflicts, elaboration of a system of appeals and of disputing the established norms;

fourthly, development of international cooperation in exploiting the equipment, rational utilisation of available resources, rendering expert assistance, research and elaboration of new projects, their financing, etc.

In conclusion, the speaker observed that Western diplomacy often strives to transfer its traditional, imperialist methods of settling international issues also to measures for the conservation of the environment. In these circumstances it is particularly important to submit to the general public for consideration the socialist ideas, methods and forms of approach to the ecological problem.

"THE ECOLOGICAL REVOLUTION"

Thus, the fundamental possibility of overcoming the ecological crisis caused no doubts in the minds of any of the speakers at the Round-Table. The participants in the discussion took up a consistently optimistic position on all the most important problems of the ecological contradictions of today and appraised their reconciliation—"ecological revolution"—as a process in which economic and social principles, factors and actions are organically intermingled.

The representatives of the *Voprosy filosofii* suggested that the "ecological revolution" should be regarded as the gradual elimination of the dissociation and opposition of the elements of the man—society—nature system on a new social, economic, technological and cultural basis. Such a revolution will be the result of the social remaking of the world, elimination of class antagonisms and the classes themselves. On this social basis the positive technological methods of overcoming the ecological contradictions, which are engendered by the *scientific and technological revolution* will most completely manifest themselves on a world-wide scale.

The "ecological revolution" does not begin *after* completion of any other stages of mankind's development (social, scientific and technological revolutions). It begins and proceeds side by side with them.

This process will also turn into a long epoch overcoming the social-psychological and cultural modes of man's behaviour that produce an adverse ecological effect. It is based on liberation of society and man from factors that fetter their development, formation

of new principles shaping man's consciousness and new relations with society and nature, when with the development of man the "realm of natural necessity" extends and man's freedom with regard to nature is realised as a necessity which will rationally regulate his exchange of substances with nature and place it under man's general control.

NOTES

¹ N. Konrad, *West and East*, Moscow, 1972, p. 484 (in Russian).

² See I. Gerasimov's article in this issue of the journal.

³ See M. Kamshilov's article in this issue of the journal.

⁴ See E. Fyodorov and I. Novik's article in this issue of the journal.

⁵ See O. Tsaregorodtsev's article in this issue of the journal.

⁶ Sicco Mansholt, "Ecologie et révolution", *Nouvel Observateur*, 1972, No. 393, Suppl. spécial, p. 11.

CRITICAL STUDIES

Marxists Versus the "Frankfurt School"

"Die Frankfurter Schule" im Lichte des Marxismus, hrsg. von Johannes Henrich von Heisler, Robert Steigerwald und Josef Schleifstein. Frankfurt-am-Main, 1970, 184 s.

The "Frankfurt School" in the Light of Marxism, Frankfurt on the Main, 1970, 184 pp.

An Institute of Marxist Studies was organised in Frankfurt on the Main in 1969, with Josef Schleifstein as director. This only Marxist institute in the Federal Republic of Germany has become an important centre for the dissemination of the ideas of Marx, Engels and Lenin; a group of theoreticians gathered round it engage in sociological, political, and philosophical problems which reflect the specific features of the country's social realities. The institute which works now in close contact with the German Communist Party has its theoretical journal, *Marxistische Blätter*, and a publishing house bearing the same name. Of the literature issued by this publishing house, the book under review aroused great interest in the Federal Republic of Germany, the German Democratic Republic and other countries. Numerous reviews of it appeared at once: *Einheit*, 1970, No. 8; *Internationale Dialog. Zeitschrift* (Wien), 1970, No. 41; *World Marxist Review*, 1970, No. 8, etc.

The book is an exposition of the materials of a theoretical discussion at which important arguments were voiced in a direct polemic with exponents of the Frankfurt School. This circumstance explains the special interest in the conference shown by the West German mass media: leading West German newspapers published comments and the TV allotted 30 minutes for a special programme (7.5 minutes were given to Marxists and the rest of the time to representatives of the Frankfurt School). The book presents an exposition of papers by András Gedö (a Hungarian Marxist), "The Dialectics of Negation or the Negation of Dialectics"; Wilhelm Raimund Beyer (Chairman of the International Hegel Society, Austria), "Philosophy Close to and Remote from Practice"; Walter Jopke, Docent of the Humboldt University, GDR, "Basic Principles of Adorno and Horkheimer's Theory of Knowledge and Society"; Professor Erich Hahn, Head of Chair, Institute of Social Sciences, Central Committee of the Socialist Unity Party of Germany, "Theoretical Principles of the Sociology of Jürgen Habermas"; Robert Steigerwald (one of the editors of *Marxistische Blätter*, "How Critical is the 'Critical Theory' of Marcuse"; Prof. Josef Schleifstein, "Critique of the

Leninist Theory of Reflection by Negt"; Jindrich Filipec, a researcher from the Academy of Sciences of Czechoslovakia, "The Cul-de Sac and the Path of Theory to Reality"; V. Zamokovoi (USSR), "Lenin on Practice"; the final part of the book contains speeches by representatives of the Frankfurt School: Ernst Mohlm, Oskar Negt and Alfred Schmidt.

The influence of the Frankfurt School in our days, as A. Gedö points out, is paradoxical in many respects. The "critical theory" of this school arose during the period of the sharp exacerbation of capitalism's crisis in the late 1920s and early 1930s; in the 1960s the influence of petty-bourgeois criticism of capitalism rose, especially among young people, students and Left-radical intellectuals.

The attractiveness of Horkheimer and Adorno, Marcuse and Habermas' ideas is based on their criticism of the bourgeois system, the use of some elements of the dialectics of Hegel and Marx and the formulation of concepts of radical action. Even at the early stages in the development of the school a specific understanding of dialectics emerged, which subsequently became widely known as "negative dialectics". Gedö holds that a great service in elaborating this dialectics was rendered by T. Adorno. "At the time of its genesis," Gedö points out, "the 'critical theory' was a typical product of the German bourgeois spirit not only in the sense that it was linked with the traditions of Stirner, Nietzsche and Dilthey, Husserl and Heidegger, but also in that it reflected the realities of the class struggle in Germany and represented an attempt to turn Marxism into a 'critical theory'."

The authors of the "critical theory" often assert that their ideas are directed against positivism, phenomenology and the critical ontology of N. Hartmann. The "critical theory", as Gedö points out, criticises positivism from the positions of *Lebens philosophie* and *Lebens philosophie* from the positions of positivism. It follows from this that "negative dialectics" is a disguised synthesis of *Lebens philosophie* and positivism in which Wittgenstein unites with Heidegger and Carnap with Merleau-Ponty. A necessary consequence of the development of "negative dialectics" is its conversion into negative theology, and into a philosophico-anthropological utopia of the Freudist-biological type in the case of Marcuse. Marcuse denounces the "repressive tolerance" of modern bourgeois society but his dreams of a total qualitative leap into a new, non-repressive society remain a hopeless utopia.

Gedö criticises the concepts of Habermas and Horkheimer demonstrating that "negative dialectics" is only seemingly dialectics, but in essence, represents a negation of dialectics. In our opinion, Gedö's analysis would have carried more weight had the author concentrated his attention on criticising such important concepts of "negative dialectics" as understanding of truth, Adorno's notion of dialectics as "consistent awareness of non-identity", "conciliation", and "identity of identity and non-identity".

The problem of the relationship between philosophy and practice is the subject of Professor Beyer's article. Notwithstanding all attempts

of the leading philosophers of the Frankfurt School to make their theories real, their "critical theory" because of its non-class approach remains far removed from practice. Beyer points to the futility of Adorno's attempts, using the negation of the negation, and Habermas's efforts employing a new "systematisation" of theory and practice, to introduce new positive elements in the link of theory and practice. Any genuinely philosophical theory remains critical. Real criticism is close to practice. But the question arises, from what positions should this criticism be conducted? From the viewpoint of representatives of the Frankfurt School and the group of philosophers united around the *Praxis* journal, criticism must proceed "from the outside". Such criticism "of everything existing outside", as pointed out by Marcuse at the International Hegelian Congress in Prague, leads to a "conflict between the critique of society and practice". Marcuse sees the revolutionary elements in the epoch of imperialism not in the proletariat but in the lumpen-proletariat, the young intellectuals and the Third World which stand outside the "affluent society". Habermas perceives the "protesting potential" in "strata of students dissatisfied with their status". Such an evaluation of the driving forces "from the outside" results in that all the attempts of the exponents of the Frankfurt School to link up their theory with practice end in failure, because the main driving forces of development are internal, and not external, as demonstrated by practice.

In examining the question of the link between criticism and practice, Beyer touches on the discussion between positivist and "dialectical sociologists" in West German sociology, between Adorno and Popper, Habermas and Albert.

W. Jopke chose as the object of his critique the views of Horkheimer and Adorno in analysing society of the epoch of imperialism. Jopke emphasised that Adorno and Horkheimer replace the dialectics of the productive forces and relations of production by an abstract interaction of man and nature. As a result they arrive at the conclusion that under socialism, just as under capitalism, people are enslaved by social reality and the technological civilisation. The plan of "revolutionary changes" Adorno and Horkheimer propose is "utopian". "In place of revolutionary science," Jopke points out, "we have bourgeois pessimism in the sphere of culture. A precise analysis vanishes and its place is taken by idealist moral postulates."

The criticism of E. Hahn is concentrated on the most important notions of Habermas. "It may be rightly assumed," Hahn points out, "that the central place in Habermas's concept is held by paired categories—'labour' (*Arbeit*) and 'interaction' (*Interaktion*), and, on the other hand, they are all but the decisive concentrated expression of his revision of Marx."

Before continuing an exposition of Hahn's article, we have to turn to the definition of these concepts, given by Habermas himself. In his book *Technik und Wissenschaft als "Ideologie"* (Frankfurt-am-Main, 1969) Habermas proceeds from the Hegelian understanding of labour, language and interaction. Language is pictured as the first manifestation of the abstract spirit, while in the sense of the real spirit language

represents definite spiritual traditions. Inasmuch as language has constant significance, instrumental actions (*Instrumentalen Handeln*) and social labour, as categories of the real spirit, depend on the communicative properties of language. Following Hegel, Habermas recognises the existence of certain common properties of labour and interaction, but actually tears asunder these concepts, asserting: "The deducing of interaction from labour or labour from interaction is impossible." In other words, Habermas does not consider the place of man in productive activity the main and driving force of his political actions in contemporary society. In this context Hahn points out that the attacks by Habermas are directed above all against the unity of the productive forces and the relations of production which make up the material basis of classes and the class struggle.

Habermas tries to replace the Marxist dialectics of the productive forces and production relations by idealistic dualism of the categories of "labour" and "interaction". Hahn reveals the inner contradiction of the artificial constructions of Habermas, demonstrates his attempt to "rework" Marxism into a theory which examines history as the development of the technicised economy (in Hahn's terminology, "de-economised history") and as a free and autonomous "social process" ("de-historicised economy").

Such a subjective nature is also inherent in the epistemological views of Habermas. He asserts that the theory of society is the basis of the theory of knowledge. But later on, in defining the subject of knowledge, society is replaced in the methodological plane by a reconstructed history of mankind, while consciousness is a self-reflexion representing a graphic notion, view and emancipation from dogmatic dependence. Habermas, Hahn says, replaces the antithesis between bourgeois and socialist ideology by a contradiction between the emancipated interests of mankind as such and technocratic consciousness.

Another contradiction and fatal shortcoming of Habermas's theory is the interpretation of self-reflexion in the spirit of Freud's psychoanalysis. Moreover, the class struggle as the basic contradiction of antagonistic society is negated by the conflict between the inner instincts and requirements of individuals in modern technicised society, and class domination is understood to be a result of society's repression of an excited individual. All this is displayed in the "system of self-preservation" irrespective of the class division of society, while ideology appears as something collective and unaware, emancipated from the anonymous power of self-reflexion.

In conclusion Hahn stresses that the laws governing social development are reduced by Habermas to the laws of individual development, an analysis of imperialism to an analysis of technology and ideology, while he himself becomes a victim of an attempt to "overpower" Marx.

The paper by R. Steigerwald criticises the concepts of Marcuse's dialectics. In the opinion of the author, the central category of Marcuse's dialectics is the total break, the absolute interruption and the direct leap, without a connection with the past capitalist society,

into the new brave world, free of alienation. This leap is made with the help of consciousness, independent of the material world, and is interpreted in the spirit of emancipation of the suppressed wants. According to Steigerwald, Marcuse defends genuine Freudism from the neo-Freudists Fromm, Sullivan and Horney who try to reconcile the true needs of man with capitalist realities. The leap, notwithstanding attempts at modification, reminds one of the views of Proudhon, the "no" concept of Nietzsche and the qualitative dialectics of Kierkegaard. "Such a type of dialectics", Steigerwald writes, "denies all the main propositions of the dialectics of Hegel, Marx and Lenin. It abolishes the link between reform and revolution, between quantitative and qualitative changes, between discontinuity and continuity. It sees the negative forces only outside the 'inferno of our dimension', transfers the poles of contradiction to two different dimensions." In this connection Marcuse elaborates the dialectics of the "external", seeing the driving forces outside the examined system. On the whole, Marcuse's views represent a variety of the ideology of petty-bourgeois radicalism within the framework of the Frankfurt School.

Representatives of the Frankfurt School deny the Leninist theory of reflection. Attempts to refute it are contained, for example, in the "negative dialectics" of Adorno. But Schleifstein's criticism is directed above all against O. Negt. Negt is a representative of the younger generation of the Frankfurt School which on some questions stands closer to Marxism. Schleifstein discloses the contradictory nature of Negt's views which in many respects are based on the "negative dialectics" of Adorno, the work of Lukács *History and Class Consciousness* and partial recognition of the Marxist-Leninist theory of knowledge. In his arguments, as Schleifstein points out, Negt utilises many bourgeois interpretations of Marxism which counterpose the theoretico-cognitive views of Engels and Lenin to those of Marx. Negt says that Lenin supposedly made a "coercive interpretation" of Marx's doctrine of knowledge. Schleifstein refutes this assertion by quoting appropriate propositions of Marx from the *Economic-Philosophical Manuscripts of 1844*, and the preface to the second edition of *Capital* (the well-known definition of Marx that the ideal is nothing else than the material world reflected by the human mind, and translated into forms of thought).

In his speech Negt tried to retort to Schleifstein, declaring that he was a true Marxist and recognised the materialist theory of knowledge, but held that it was not entirely true, and "supplemented" it with a new element (*Gegenstandsformen*) which is defined as the man-made mediating link between the subject and the cognisable world. The Leninist theory of reflection is considered by Negt an "abstractly formulated materialist principle" put forward in the heat of the polemic within the Party and dogmatised in the course of the further development of Marxist philosophy in the USSR.

Thus, Negt, notwithstanding the recognition of separate elements of Marxism, in his theory of knowledge adheres to idealist positions and in politics, as rightly noted by Schleifstein, does not go beyond the bounds of petty-bourgeois revolutionism

The "German spirit" of the Frankfurt School, J. Filipec stated, stepped across the frontiers of the Federal Republic of Germany and, along with the ideas of R. Garaudy, E. Fischer and I. Deutscher, appeared in the ideological context of the so-called "Prague Spring". Criticism of the concepts of these authors, with whose help the revisionists tried to "dismantle" Marxism, is an important task of Marxist philosophy in Czechoslovakia. The antisocialist tendencies were displayed in two main trends. On the one hand, socialism was denounced for employing institutional means in carrying out the plans of socialist construction and its essence was pictured as bureaucracy. On the other hand, the acceleration of scientific and technological progress in socialist society was pictured as technocracy. Filipec emphasises that these tendencies boil down to the thesis on the institutionalisation of Marxism. Socialist institutionalisation, the author notes, was presented as the "apotheosis of materialisation", the socialist state as "abuse of power" and the Communist Party as a superfluous "complication" of socialism.

Filipec then examines the influence of modern technology on the individual, society, culture and art. He bases his arguments on the Marxist understanding of technology as a means of man's subjugation of the elemental forces of nature. In this context he criticises the work by Karel Kosik, *The Dialectics of the Concrete*, in which he feels the influence of the ideas of the Frankfurt School. Kosik refuses to examine the data of concrete sciences giving preference to "authentic" philosophy. As a result Kosik's "philosophy of labour" turns into abstract humanism and idealist speculations based on German romanticism.

This subject is raised in the methodological discussions in West German sociology, specifically between Adorno and Popper. Filipec assesses thoroughly this discussion: the debate between positivism and the Frankfurt School is not resolved only to a "system-simplifying function". Important problems are also taken up in the discussion such as man and the consequences of his social activity, the boundaries of the application of science, especially the social sciences, to the present and future of society. Filipec urged researchers not to confine themselves to an examination of apologetic tendencies in different schools of non-Marxist philosophy, but to offer a correct solution to the raised problems from the viewpoint of Marxism.

The book includes, in addition to the main papers, speeches by E. T. Mohl, O. Negt, A. Sohn-Rethel, A. Schmidt, J. H. von Heiseler, J. Schleifstein, H. Lederer, G. Matthiessen, R. Steigerwald, E. Hoffmeister, G. Meixner, Chen Yuh-huei, P. Simon and Th. Hilpert. Their statements did not deny the need for criticising the wrong propositions of Adorno, Horkheimer, Marcuse and Habermas, although on the whole different, often contradictory viewpoints were voiced. This was noted in the summing up speech of J. Schleifstein who demonstrated the significance of Marxist criticism of the ideas of the Frankfurt School in the contemporary ideological struggle.

I. Petrov, Y. Prikulis

BOOK REVIEWS

THE LAND OF SOVIETS

A book titled *Armenia* appeared in Soviet bookshops at the end of 1966. This was the first volume in the series *The Soviet Union*, the launching of which was timed by Mysl Publishers to the 50th anniversary celebration of the Great October Socialist Revolution. The other volumes of this series were issued in subsequent years. Fourteen of them are dedicated to individual Union Republics (*Ukraine* was issued in two half-volumes). An additional seven volumes cover the Russian Federation which takes up more than three-quarters of the country's territory and accounts for more than half of the population. The last, 22nd volume of the series which recently came off the press, contains a survey of the Soviet Union as a whole. Thus, the publication started in the period of preparing for the jubilee of the Great October Revolution was completed during another memorable occasion, the 50th anniversary of the formation of the Union of Soviet Socialist Republics.

The 22-volume series, the first in Soviet times to give an all-round geographical description of the country, is designated for a wide audience. The authors and the publishers set out to cover the most important features of the country's nature and wealth, its multinational population and especially the social, economic and cultural achievements of the first socialist state in the world.

In all, the volumes contain over 10,000 pages. The series encompasses literally all geographical aspects and in a way presents a sweeping panorama of the Soviet Union in the late 1960s and early 1970s.

The series as a whole has a sufficiently precise and unified internal structure. Every volume begins with a kind of "visiting card" of the particular Union Republic or economic region—a small introductory section in which the most characteristic features of the given Republic or region are described against the general background of the diverse nature, population and economy of the USSR.

The general review which takes up a considerable part of every volume consists of four sections. The first one is named "Nature". Its material is marked not only by scientific cognitive value but also by a vivid geographical description. As a rule it contains an economic evaluation of the natural conditions and resources and analyses the influence of the life and work of the people on nature.

The second section, "Pages of History", is comparatively small and covers the most important historical, especially historico-revolutionary events.

The third section offers a characteristic of the population furnishing information about its size, growth, settlement, migration and also elements of ethnography, description of the way of life, traditions, labour skills and the culture of the peoples.

The fourth, central section, "Economy", after a general economic review of the Republic or region presents a description of industry, agriculture, transport and economic ties.

In their totality the 22 volumes give a graphic idea not only of the distinctions in the development of Union Republics and economic regions, their specialisation in the inter-regional division of labour but also the comprehensive nature of the Soviet economy which develops in accordance with a single plan. In describing the immense changes in the Soviet Union's economic life which are a result of the victory of socialism, the authors pay special attention to the shaping of the new geographical pattern of production—shifts in the distribution of the productive forces, the country's economic regionalisation and the transformation of old and the rise of new industrial areas.

The multi-stage geographical characteristic of the series enables the reader consecutively to pass on from a small-scale view of the entire Soviet Union or its big parts to a large-scale description of comparatively small territories. The result is a three-dimensional picture of the country.

Special mention should be made of the way the series reflects the Leninist nationalities policy of the Communist Party which turned the Soviet Union into a powerful and thriving multinational state, into a friendly well-knit family of peoples.

When the Soviet Union was just formed its constituent Republics sharply differed in the level of their economic and cultural development. The industrial centres (Moscow and Petrograd, the Urals, cities in Central Russia, the Southern Ukraine and Baku) seemed like isolated islands amidst a boundless sea of agricultural regions. The areas of Central Asia, Kazakhstan and Transcaucasia were extremely backward economically. As early as 1918 Lenin wrote that "our natural wealth, our manpower and the splendid impetus which the great revolution has given to the creative powers of the people are ample material to build a truly mighty and abundant Russia" (V. I. Lenin, *Collected Works*, Vol. 27, p. 161). And such a mighty and abundant Russia has been built under the leadership of the Communist Party. The series recreates the impressive half-century changes.

Economically, the RSFSR and the Ukraine were the strongest of all the Republics which in 1922 formed a single union. At that time they had already a comparatively developed industry. But it is difficult even to compare their present level with that of those days. In the seven volumes devoted to the Russian Federation the authors graphically bring out the titanic growth of the Republic's economy in Soviet times. Industrial output in the RSFSR increased more than 100-fold compared with 1913.

The industry of the Soviet Ukraine also grew tremendously. Today it needs less than six days to produce an industrial output equal to that of the entire 1913.

But even these high rates were surpassed in the regions most backward in the past. Here are some data given in the respective volumes. In Byelorussia, for example, industrial output rose 121 times compared with the prerevolutionary level. The output produced annually in prerevolutionary Kirghizia is now put out in three days by the Republic's industry. Copper, cognac and tinned fruit were the only items of Armenia known beyond its bounds in the past; today it supplies the other Union Republics with dozens of different industrial items. Industrial production rose 94 times in Lithuania, 96 times in Georgia and 98 times in Tajikistan, 170 times in Kazakhstan and 179 times in Moldavia.

The agriculture of the Union Republics has also been transformed on the basis of socialism. This is amply reflected in the series. The pace of the country's economic growth is so fast that geographical descriptions naturally swiftly become out of date in some respects. Nevertheless they reflect the main thing—the rapid economic advance of the country under socialism.

A distinctive feature of this advance is that it has affected not some individual, comparatively developed regions of the country but literally its entire territory. Not only the RSFSR or the Ukraine but also all the other Union Republics have now a highly developed socialist industry, mechanised agriculture, ramified transport arteries and modern means of communication. The social and state system of the USSR made it possible to unite into a single entity the country's natural and economic resources.

The national economy of the USSR now is not a simple sum total of the economies of individual Republics more or less economically developed, but a single complex in which every Republic and every economic region have their place, their specialisation in the inter-regional division of labour. From this follows the increasing importance of inter-republican and inter-regional production ties, without which neither a republic, nor economic region, nor the economy of the USSR as a whole can successfully develop. These interconnections which reflect the structure of the geographical division of labour are graphically presented in the section on economic regionalisation in the final volume of the series and in the volumes covering individual regions.

The interconnection of all economic regions which operate in accordance with a single state plan is one of the basic distinctions of the Soviet national economy enabling it to cope with the most intricate economic and technical tasks. Only in conditions of a single planned socialist economy which unites the manpower and material resources of all the Republics has it become possible to carry out countrywide measures in which the USSR as a whole and each Republic individually are vitally interested.

In *The Soviet Union* the reader will find many examples of such countrywide economic measures. The black dots and circles denoting towns are a steady feature of a contemporary geographical map. By the speed of the changes in the number of such dots it is possible to judge, with a great degree of precision, about the industrial development of a country or region. Analysing the causes of the swift growth of cities in the USSR, the authors succeeded in clearly revealing its main basis. New towns appeared mostly where industrial construction developed and new mineral deposits were opened up at an especially high pace. This stimulated the growth of some old towns to such an extent that they, as it were, practically arose anew. In 1926 only three cities (Moscow, Leningrad and Kiev) had a population of more than 500,000. At present there are 34 such cities inhabited by about 40 million people.

It is rightly pointed out in the concluding volume that the increase in the number of cities and their population is explained not only by the country's industrialisation but also by the profound changes in social relations and achievements in culture, education and the health services. Thus, the enhanced role of science in social development has brought into being small towns of an entirely new type—specialised research and research-production centres. The countrywide scale of health-building work in the USSR has led to the rise of a number of resort cities which formerly could be counted on the fingers of one's hand. What is characteristic of our time is also the conversion of many villages into urban-type communities, organisational and economic centres of agricultural districts, which play an important part in their socio-political and cultural life and in providing the countryside with machinery, agronomical services and specialists.

The reader of the series will gain a clear idea of how socialist transformations have altered the entire way of life of the peoples who were economically backward in the past. The detailed data on the growth of cities can serve as a kind of demographic prism refracting the general picture of evening out the levels of economic and cultural development of all the constituent Republics of the Soviet Union.

This prism also has other facets which are helpful in seeing changes in even bolder relief. One of the sections in the final volume is entitled "Geographical Map of the Location of the Soviet Union's Population". It examines, in particular, the concept "The Main Belt of Settlement", within the bounds of which the overwhelming majority (almost three-quarters) of the country's population is concentrated. It is easily seen that in Soviet times this belt has been greatly extended; in particular, its part beyond the Urals has almost doubled. The share of the population living outside the Main Belt has also grown substantially. The shift of the economy eastward has brought about tangible changes in the geographical distribution of the population.

In geographical works processes of population migration are usually examined from the angle of the redistribution of manpower resources. The authors of the series go farther: alongside the economic aspect they also study the social aspect of the problem. Specifically, they trace the connection of migrations with the drawing together of the peoples of the USSR. In most cases migrations increase the drawing together of people of different nationalities and ethnic origin. Thus, in effect, all the more or less bigger cities of the USSR have already turned into multinational communities as a result of migrations. In such cities the share of mixed marriages increases all the time, often reaching 30-40 per cent.

The economic development of Siberia's northern regions has brought about an influx of settlers from the European part of the USSR. This not only promotes the swift economic growth of these areas but also has greatly influenced the culture, way of life, family relations and the language of indigenous nationalities.

Let us recall that the multinational Soviet Union consists of 15 Union Republics which also incorporate 20 Autonomous Republics, 8 Autonomous Regions and 10 National Areas. The population censuses have shown that the Soviet Union has 126 nations and nationalities altogether. In the multinational socialist state all of them live as one friendly family. The Leninist nationalities policy of the Communist Party has abolished the national seclusion of the peoples, has facilitated the education of the masses in the spirit of socialist internationalism. The drawing together of nations is steadily developing in the USSR. For all the growing community of the spiritual make-up, culture, way of life and morality of the peoples of the Soviet Union, based on the community of the economy, socialist way of life, ideology and unity of the vital interests and aims of all the nationalities, every people of the USSR at the same time has its own national distinctions which are carefully considered by the Communist Party.

The Soviet Union series acquaints readers with the history of every people, its ethnic composition, specific features, language, way of life and culture. Not confining themselves to a characteristic of the many languages, the authors also describe the ethnographic specific features of the population displayed to one or another degree in economic activity, distinctions in the dwellings, household utensils, clothing, food and the way of life, family relations, customs and spiritual culture (songs, music, dances, and so on).

It should be noted that the authors of the ethnographic sections tried to present the peculiarities of the different peoples not statically but dynamically, in the process of the emergence of new forms of life connected with the rise and development of the socialist way of life and the reciprocal influence exerted by the cultures of the socialist nations (in a number of volumes the respective sections are titled "Traditions and Our Time"). The reader will find in every volume facts demonstrating how some features in the life of the peoples are withering away or are filled with a new, socialist content and how new features common to all the socialist nations take shape.

This is clearly shown especially in the case of popular customs. Gone for

ever are many archaic customs linked with social inequality, religious prejudices and superstitions. Simultaneously some old customs which are in line with the people's life have undergone serious changes to become modern festivities. New splendid customs associated with the work of the people have originated in a number of Republics.

Increasingly more common features are developing in the external aspect of towns and rural communities of all Soviet Republics. Preserving their nationally specific, colourful features and memorials of history and culture, they at the same time acquire what modern technology and industry offer for improving the life of the people. All the volumes contain data on the cultural progress of the Soviet peoples attained under the leadership of the Communist Party.

The achievements in education are decisive in this respect. While in pre-revolutionary Russia only one-quarter of the population was literate, the USSR long ago attained almost universal literacy. The share of persons with a higher and secondary (complete and incomplete) education exceeded three-quarters of the gainfully-employed population in cities and more than half in the countryside in 1971. The biggest shifts occurred in regions where the working masses in the past were especially robbed, to use Lenin's expression, of knowledge and education. In the past even the European part of Russia was marked by big contrasts in the level of education and culture. There was a vast difference between the capital, Petersburg, with its university, institutes and scientific establishments and "god-forsaken places" in the northern areas of Russia where darkness and illiteracy held sway. With the advent of socialism the cultural revolution spread throughout the vast expanses of the country. Now the population of Leningrad does not differ essentially from that of remote localities as regards the level of literacy.

The geography of Soviet science has changed amazingly in the 50 years since the formation of the USSR. Academies of Sciences have been set up in all the Union Republics, and their activities and achievements are described in the series. Even comparatively small nationalities which in the past had no written language of their own have now their own scientists and specialists in all branches of the economy and culture.

The cultural progress of the Soviet peoples is also expressed in the wide development of literature and art in all the Republics. Though the series carries meagre information about the literature and art of the peoples, it nevertheless enables the reader to gain a picture of the wealth and diversity of artistic life in all the Republics. In Soviet times literature and art attained a high level not only among the peoples with a rich cultural heritage, but also among those for whom the only form of artistic creative endeavour was folklore (folk songs and dances). The peoples of the North and other areas for the first time acquired their own writers, painters or actors under the Soviet system.

Discussing the development of socialist culture, the authors trace the deep roots which bind Soviet literature and art with the cultural heritage of the peoples, big and small. Having assimilated the best from the culture of past epochs, the literature and art of the Soviet peoples have been filled with a new socialist content, have become the standard-bearers of advanced ideas of our age, the ideas of communism. Deep kinship with the people and the Communist Party spirit are their main, determining features.

In a number of volumes the authors show what great reciprocal influence the literature and art of the fraternal peoples exert on each other in socialist society. The finest works of prose writers and poets of one Republic rapidly become popular in the other Republics as well. It is because the culture of the Soviet peoples is single for its ideological aspirations and socialist content that

the artistic works of each people are intensively enriched by the creative discoveries and achievements of all the other peoples without losing their national specificity. Thus, the multinational Soviet culture is shaped and developed as international for its very nature.

The authors emphasise the exceptionally great part played in the mutual enrichment of cultures by the language and culture of the great Russian people. In the Soviet Union the Russian language is an important medium of communication between nations. In this capacity it makes available to every people not only the treasures of Russian culture but also the spiritual wealth of all the other fraternal peoples of the Soviet Union.

The last census of the population (1970) showed that about 55 million people of non-Russian nationality have fluent mastery of the Russian language.

The socialist way of life, the unity of interests of the working people of all nationalities, the great common aim, i. e., the building of communism, the Leninist nationalities policy pursued by the Party—all this forms the basis for the unbreakable friendship of the USSR peoples and their ever greater drawing together. This idea runs through all the 22 volumes of the series.

The content of the series leads the reader up to the conclusion drawn by the 24th CPSU Congress: a new historical community of men and women, the Soviet people, has emerged during the years of socialist construction. Rallied round their Communist Party, they are tirelessly working on their regenerated land to make it even more beautiful and prosperous.

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We have tried to give a general idea about the nature and main content of this fundamental work of Soviet geographers.

But this publication will attract readers not only by the wealth of content. Many of its pages written in a very lively and lucid style will be long remembered. The make-up of the series is commendable. The well selected photographs create a kind of visual background for the text. The maps have been compiled with an eye to the main purpose of the publication. Statistical and toponymic appendages and also explanations of the terms are a welcome supplement to the text.

A tremendous volume of work has been accomplished, successfully on the whole. A large body of authors has taken part in it—leading geographers, scientists, Party functionaries and government officials of the Union Republics. The editorial board headed by Academician S. Kalesnik, President of the USSR Geographical Society, consisted of eminent specialists in the physical and economic geography of the USSR. The comprehensive geographical description of the Soviet Union, the first after the well-known many-volume publications of P. and V. Semenov-Tyanshansky, is the collective product of a big body of specialists.

Publication of *The Soviet Union* series is a notable event not only for Soviet geography but also in the cultural life of the USSR.

V. Maksakovsky,
D. Sc. (Geogr.)

Ленинская теория социалистической революции и современность. М., Политиздат, 1972, 526 стр.

Lenin's Theory of Socialist Revolution Today, Moscow, Politizdat Publishers, 1972, 526 pp.

The theory of socialist revolution occupies a special place in Lenin's ideological legacy. The essence of this theory, its significance for the revolutionary transformation of the world are brought out in a number of works published in the Soviet Union. Of particular interest among these is the book *Lenin's Theory of Socialist Revolution Today*, prepared by the Institute of Marxism-Leninism under the CC CPSU.

The book exposes the attempts of bourgeois and revisionist ideologists to prove the "incompatibility" of Lenin's theory of revolution with present-day conditions, to confine its influence to a historical and geographical framework. The authors of the book demonstrate the utter falsity of such concepts and show that today the theory of socialist revolution exerts a stronger influence on the destinies of mankind than before. Its tremendous theoretical and socio-political significance springs from the very nature of our epoch—the epoch of the transition from capitalism to socialism, from the fact that from a theoretical problem it has become one of revolutionary practice, from the demands of the liberation struggle.

On this background the authors of the book analyse the new phenomena of modern capitalism, the system of the state-monopoly regulation of the economy. They draw particular attention to the fact that this system and scientific and technological progress far from reinforcing capitalism's positions are intensifying its basic contradictions, and accelerating within the capitalist system the process of the maturing of the material prerequisites for socialism.

The book examines the shaping of the mass forces of socialist revolution and shows, on the basis of the Leninist teaching, that the working class forms the kernel, that its unity is basic to the proletariat achieving its historic mission in the new conditions. The authors write that in the epoch of imperialism the working class as the most revolutionary class is more and more becoming the centre of attraction for all opposition elements of capitalist society, that the working class seeks to use the most diverse ways of leading the masses to proletarian revolution.

As a result of the growing proportion of wage workers and the intensification of exploitation under state-monopoly capitalism the social base of proletarian revolution is widening. The anti-monopoly front, headed by the working class, includes peasants, a considerable part of the intelligentsia and other intermediate strata of the population, the progressive youth, and part of the petty and middle bourgeoisie whose interests are infringed upon by monopoly capitalism. Given the favourable development of events, we read in the book, the movement originally directed against state-monopoly capitalism grows into a movement against capitalism as a whole and for socialist revolution.

The book elucidates the Marxist-Leninist tenet on the correlation of objective conditions and the subjective factor in revolution and shows in this connection the growing importance of the subjective factor for its victory in present conditions. The elements of this factor are examined at length: the revolutionary consciousness of the masses, their readiness and determination to wage the struggle to the end; high degree of organisation of the masses and their communist vanguard, which makes it possible to concentrate all forces on winning the revolution; leadership of the masses by a Marxist-Leninist party capable of elaborating the right strategy and tactics and putting them into effect.

The authors differentiate between a revolutionary situation and revolution proper. "The development of a revolutionary situation is a process of accumulation, of condensation of the revolutionary energy of the working class, working people and exploited masses which under certain conditions manifests itself and turns into mass revolutionary action. The transition from a revolutionary situation to revolution is a leap. Revolutionary energy bursts forth, surfaces, finds vent in a direct movement of the masses." Despite the subjective aspects characteristic of it a revolutionary situation is an expression of the objective conditions of revolution.

Discussing the various forms of socialist revolution the authors of the book show, on the basis of concrete facts, that the possibilities of its victory in a peaceful way have grown in present-day conditions. This does not mean, however, that the said way is a purely evolutionary process; it is one of the forms of proletarian revolution. What path the revolution will take—the peaceful or non-peaceful—depends on the alignment of class forces, the concrete situation, on the degree of resistance by

B. КАСЬЯНЕНКО. *Завоевание экономической независимости СССР (1917-1940 гг.)*. М., Политиздат, 1972, 335 стр.

V. KASYANENKO, USSR: *The Winning of Economic Independence. 1917-1940*, Moscow, Politizdat Publishers, 1972. 335 pp.

In this book, the entire prewar history of the Soviet Union (1917-June 1941) is treated in the light of its effort to attain national economic independence. The author gives his analysis of the extremely complicated conditions of the people's struggle, its stages, and the steps taken by the Communist Party and the state to solve this major problem, and shows the Party's flexible economic policy in the period.

the exploiter classes. But no matter what form the socialist revolution takes, the authors note, it will have as its main task that of destroying the old machinery of state and creating a new one, one embodying the power of the working class.

Questions of war and peace are examined in close connection with the world revolutionary process today. The authors note that the success and prospects of socialist revolution depend not only on the internal political situation in one or another country but also on the international situation.

An undoubted merit of the book is that its authors in their analysis of present-day developments have drawn extensively on the revolutionary experience of the CPSU and the fraternal parties. The Great October Socialist Revolution, the practice of world socialism, of the working-class and national-liberation movements, are vivid proof of the historical correctness and validity of Lenin's theory of socialist revolution.

A. Kosichev,
D. Sc. (Philos.)

V. Kasyanenko describes the major stages in the struggle in which the country was industrialised, collectivisation was accomplished and the cultural revolution took place.

From the very outset the Soviet Government tended towards peaceful and businesslike cooperation with capitalist countries. But this attitude always encountered the hostile policy of imperialist states and their constant attempts to boycott Soviet Russia and undermine her economic development. The different aspects of this policy, considered in the book, include, among other issues, efforts of the imperialists to impose one-sided economic agreements on the Soviet Republic, the successive anti-Soviet campaigns in the 1920s and 1930s, the economic blockade, smuggling operations, and the frustration

of the signed agreements by some foreign firms.

Russian émigré organisations, representing all the bankrupt political parties from monarchists to Mensheviks and Socialist Revolutionaries, were especially active in undermining economic agreements with the Soviet Republic. In the final analysis they suffered fiasco in this sphere. Economic boycott was one of the forms of class struggle, and the efforts of the Communist Party and the Soviet state were always directed at strengthening their dominant economic positions. The author highlights the special significance of the ideological and political defeat of Trotskyites; Right oppositionists, and others, who attempted to throw the country off Lenin's track.

Like the nationalisation of land and industry foreign trade monopoly was of great importance for socialist economy and the book provides elaborate historical material to show its role in the struggle for national economic independence. The monopoly of foreign trade and currency was pointedly discussed, the principles of its practical application and development were worked out by Lenin, and for many years the issue was directly handled by the Central Committee of the Party. The principle of socialist economic protection was especially important for the monopoly of foreign trade. The Communist Party always took into account the inevitable contradictions between imperialists and did everything to avoid isolation from foreign markets, to attract foreign technical know-how and concessionaires. At the same time measures were taken to protect the country from economic intervention and smuggling of valuables. Despite the anti-Soviet campaigns in capitalist countries, by 1925-1926 the USSR had had trade connections with 40 states. In the years of economic crisis the Soviet Government made use of the business conditions on the world market to increase the import of technological equipment and raw

material. In treating these and other facts, the author notes that in every case, be it a trade or credit agreement or an agreement on a concession to foreign capitalists, the Party demanded a political approach to them and took a firm stand against any infringement upon the interests of the state.

V. Kasyanenko holds that the 14th Congress of the Party in 1925 was a turning point in the process of making the Soviet Union an economically independent country. The Congress slogan of transforming the USSR from an importer of machinery and equipment into a country producing technological equipment was translated into life during the First Five-Year Plan (1928/29-1932/33). The development of all sectors of the economy above all heavy industry and machine-building is analysed, numerous facts and figures being cited to show how the Soviet Union was freed from the imports of machinery. The fact of winning economic independence was reflected in the gradual cancelling of concessions granted to foreign capitalists.

V. Kasyanenko shows that changes in the international political and economic situation in the 1930s demanded the Communist Party's efforts being centered on the problems of military and strategic importance. But even on the eve of the war, the Party and the Government took into account the contradictory tendencies in the capitalist world and used every opportunity to establish mutually beneficial economic relations.

The intensified schedule of industrialisation and the need to draw on the country's internal reserves caused economic tensions and incurred additional expenses. Disproportions in the development of different branches of industry, metal shortage, interruptions in the raw material supply, lack of experience and the novelty of the entire undertaking caused many difficulties for the country.

The author regards the involved picture of this struggle with a sober

eye for reality. He centres his attention on the results of the first to third five-year plan periods during which the working class of the USSR implemented a giant capital construction programme, completed the technical reconstruction of the economy and mastered new techniques and production. As a result of these changes at

the end of the 1930s "the world saw a new state with its own industry and collectivised agriculture, economically independent power, full of energy and on the way to communism."

L. Shkarenkov,
Cand. Sc. (Hist.)

П. ФЕДОСЕЕВ. *Марксизм в XX веке. Маркс, Энгельс, Ленин и современность*. М., изд-во «Мысль», 1972, 582 стр.

P. FEDOSEYEV, *Marxism in the 20th Century. Marx, Engels, Lenin and Our Age*, Moscow, Mysl Publishers, 1972, 582 pp.

The book of Academician P. Fedoseyev analyses a wide range of problems of scientific communism. The first section deals with the creation and development of scientific communism by Marx and Engels. The second section reveals the role of Lenin as the greatest theoretician of communism and describes the struggle of Leninism against subjectivism and bourgeois objectivism. In the third section the author brings out the international significance of the experience of the Great October Socialist Revolution and analyses the leading role of the CPSU in building socialism and communism.

The active, creative nature of Marxism is deeply disclosed in the monograph which proves that only Leninism—Marxism of the contemporary epoch—offers a scientifically-based solution to fundamental problems raised by society's historical experience. The Leninist stage in the development of Marxism did not end with the death of Lenin; it is continued to this day, finding its embodiment in the tremendous theoretical activity of the CPSU and fraternal Communist parties which are loyal to the creative spirit of Leninism.

Leninism vigorously opposes both revisionist "modernism", which unjustifiably lays claim to reviewing the practice-tested fundamental truths, and also the dogmatic stagnation of thought, which ignores new facts and phenomena.

Drawing on the Leninist methodological principles of criticising ideology hostile to Marxism, the author consistently exposes the most widespread concepts of present-day Right and "Left" revisionism.

Only the method of materialist dialectics makes it possible correctly to determine the nature, main laws and driving forces of the contemporary historical epoch. The dialectical materialist understanding of our age—here is the focus in which the numerous questions analysed in Fedoseyev's work are concentrated.

In the present historical epoch, as the author stresses, the problem of the driving forces of the revolution and the allies of the working class require further analysis. The new element here consists in that the working class in countries where the socialist revolution triumphed has become a state-organised class which guides entire society. As the might of the socialist system rises, it turns into the decisive factor of world policy and world development. Moreover, scientific and technological progress which spread in the second half of the 20th century in the economically developed capitalist countries has led to essential changes in the class structure of society and in the correlation of the social forces. The share

of the working class is increasing and ever new sections and groups of the non-proletarian population join the ranks of its allies, thereby extending the anti-monopoly front. The fusion of the struggle for socialism with the national-liberation movement has occurred on a worldwide scale. The colonial system of imperialism has collapsed, while the national-liberation movement has become a mighty force of the anti-imperialist struggle. Lastly, the allround substantiation of the ways, means and methods of preventing another world war has become a great gain of Leninism in the present epoch, its inestimable service to mankind.

The author analyses the distinctions in the development of anti-monopoly capitalism. He shows that it, more clearly than ever, demonstrates the correctness of Lenin's analysis of imperialism.

Utmost use of the achievements of science and technology is acquiring ever greater significance in the economic competition of the two systems in the world. The objective conditions of this competition, as the author points out, contribute to that the advantages of the socialist over the capitalist society are displayed ever more strongly in the sphere of scientific and technological progress, too. These advantages are rooted in the very nature of socialist social relations. Under capitalism, science is increasingly divorced from the masses. The gap between mental and manual labour is not reduced but is widened. And this is the most vulnerable spot of the capitalist way of applying science and the achievements of technological progress. The antithesis between mental and manual labour can be abolished only by demolishing the class structure of capitalist society.

Drawing on the Leninist ideas which have been creatively developed in programme documents of the international communist movement, in the theoretical activity of the CPSU, Academician Fedoseyev cha-

acterises the main features of the present historical epoch.

First of all it is an epoch of transition from capitalism to socialism. Fundamental changes of the social structure, even within the bounds of one country, cannot be made by way of a single action. This applies all the more to the development of society on a global scale. That is why the transition from capitalism to socialism will take up quite a long historical period.

Second, the present epoch is characterised by increased unevenness of capitalism's development, which is linked with the exacerbation of its contradictions, its antagonisms. The consequences of uneven development, the author asserts, are also felt in the world socialist system. "Of course here other sociological laws operate, and above all the law of the levelling up and the proportional development of the economy on the basis of mutual cooperation. But the difference in the levels of economic and socio-political development inherited from the past are exerting a certain influence on relations between different countries. This is the ground for the rise of certain problems and difficulties in the development of the world socialist system. These difficulties, however, are of an historically transient nature. They, of course, will be removed with the consistent operation of the main laws inherent in the new organisation of society."

Third, the present epoch is marked by the combining of the social and national-liberation revolutions and also by the spread of the scientific and technological revolution on an unparalleled scale.

Fourth, our epoch is characterised by dynamism, the unprecedented acceleration of the historical process as a result of the involvement of the masses, millions strong, in it and the growing pace of scientific and technological progress. From this the author draws the justified conclusion that in social forecasting, in determi-

ning the prospects of social development, account must be taken of the greater role played by the masses and of the qualitatively new role of science which is increasingly turning into a direct productive force.

Fifth, our epoch is marked by the enhanced role of the working class in all the main events and movements of our age.

The sections of the book which reveal the dialectics of the international and the national in the development of contemporary society are of considerable interest. The author emphasises that the tendency to internationalise the most diverse sides of social life is decisive at the present stage. In socialist countries the basis of internationalisation is the social nature of ownership of the means and instruments of production, the policy pursued by the working class and its party of the drawing together and mutual enrichment of nations and nationalities and genuine democracy in all spheres of social life. As for capitalism, internationalisation processes of social life which take place here in an antagonistic form, is also based above all on economic factors.

In this connection, Academician Fedoseyev remarks, it is necessary to consider the intricate dialectics of economic and political development in conditions of contemporary capitalism. "Capitalism brought with it the law of economic concentration, but there is no such law in political relations, that is, a law of political-state concentration. That is why we regard as insolvent the cosmopolitan theory, according to which international economic integration must necessarily lead to the creation of a worldwide supra-national state or, for the beginning, of a United States of Europe".

The development of contemporary capitalism is marked by the intensification of nationalism. The author approaches in a historically concrete way the analysis of the forms of contemporary nationalism. "Marxists understand," he writes, "that nationalism is not a phenomenon outside of

classes, is not a supra-class ideology. The class nature of nationalism and its role at different stages of history are clear to us." The author notes, proceeding from Leninist propositions, that there is nationalism of oppressed nations; it has a definite anti-imperialist, anti-feudal content which Marxists supports. There is also nationalism of the oppressing nations which is thoroughly reactionary in its content. For all their deep differences, there is no solid wall between these two types of nationalism. In countries subjected in the past to imperialist oppression, nationalism, under certain conditions, also becomes a reactionary force if it develops into chauvinism and becomes intertwined with anti-communism. A case in point is the activity of the Peking leaders, their policy directed not so much against imperialism as against the Soviet Union and other socialist countries, against the world communist movement as a whole.

The author points out that there is no, and there cannot be, any objective ground for antagonism between the national and the international tasks of a proletarian party if it adheres to Marxist, class positions.

The book deals with important theoretical problems of developed socialist society. Its specific features, in the opinion of Academician Fedoseyev, consist in that the gigantic scale of the national economy, the immense economic potential, advanced science and skilled personnel enable the Soviet Union to cope simultaneously with a wide range of problems.

Enhancement of the leading role of the Communist Party in building socialism and communism is rightly examined in the book as a major law of social development. The leading role of the Party is one of the basic questions of the revolutionary movement, of building the new society. It is this question that is the nodal point of the struggle between Marxists-Leninists and contemporary revisio-

nists. The leading role of the Communist Party is improved at every new stage of historical development. But, as shown in the book, this improvement in conditions of mature socialism in no way proceeds in the direction wanted by the proponents of so-called democratisation of socialism who yearn to curtail the sphere of activity and the influence of the Party under the false pretext of the need for "separating it from power" and introducing "political pluralism" for the sake of sham democracy.

The leading role of the Party in conditions of building communism, as pointed out by the author, acquires new distinctions and rises to a higher level. This is expressed above all in that the Party is now tackling qualitatively more intricate task—practically to build classless communist society. In view of the formulation and carrying out of the plans of communist construction in conditions of the scientific and technological revolution the degree of scientific substantiation of policy and the role of economic and social forecasting is raised. The leading activity of the Party is aimed at thoroughly disclosing and utilising the advantages of developed socialist society as a harmonious system which requires proportional development of all its structural elements.

Фидель КАСТРО. *Сила революции—в единстве.* М., Политиздат, 1972, 422 стр.

Fidel CASTRO, *The Power of the Revolution Lies in Unity*, Moscow, Politizdat Publishers, 1972, 422 pp.

Fidel Castro, the First Secretary of the Central Committee of the Communist Party of Cuba and Prime Minister of the Revolutionary Government, paid a friendly visit to Chile late in 1971 at the invitation of Salvador Allende. The speeches of Fidel Castro, in which he told the Chilean people the truth about Cuba, were

Enhancement of the role of the Party is also determined by the fact that the building of communism proceeds in conditions of the existence of the world socialist system, in conditions of the struggle between socialism and capitalism. A scientifically-based solution of the new intricate tasks of communist construction raises the importance of the Party's theoretical work. Scientific forecasting has been, and remains, a necessary condition for the leading activity of the Party in communist construction. These factors which raise to a higher level the leading activity of the Party are also linked with the fact that in the dialectics of social being and social consciousness in conditions of developed socialist society, the subjective factor acquires ever greater significance. This naturally does not imply a decrease in the role of the material conditions and objective laws. It is a matter of raising the political consciousness and organisation of the masses, of the role of the Party as the directing and guiding force which, with an ever greater degree of scientific precision, cognises and utilises the objective laws and advantages inherent in socialist society.

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published in book form in Cuba and other countries. They were issued in Russian by Political Literature Publishers.

This book by Fidel Castro is a valuable contribution to the spread of the ideas of socialism and national liberation, especially in Latin America, where the struggle is being waged against international imperialism and local reactionary anti-popular regimes. This book is also an important source for studying the experience of the Cuban Revolution, the deep-going socio-political and economic transformations, being effected by it, and the theory and practice of socialist construction in Cuba.

In his speeches, Fidel Castro attaches exceptional importance to the subject of proletarian internationalism, and the role and importance of the Soviet Union and other socialist countries in defending the Cuban Revolution and strengthening and developing its gains. The First Secretary of the Central Committee of the Communist Party of Cuba has repeatedly stressed that the Cuban Revolution has succeeded in bringing about an epochal turn in Latin America not only because the people and the revolutionaries of the country have worked very hard but also because it took place at an especial historical moment, when the balance of forces in the world arena between the imperialist and the revolutionary camp also began to change. This became the basic and crucial factor which allowed the Cuban Revolution to fulfil the extremely difficult task of withstanding the imperialist blockade.

Elaborating on this idea at a press-conference in Santiago de Chile during his stay in Chile late in 1971, Fidel Castro said that the Soviet Union had always given the Cubans the greatest assistance permeated with a spirit of internationalism.

The Prime Minister of the Revolutionary Government of Cuba resolutely condemned the acts by imperialist circles against the first socialist country, which had routed fascism and which has been helping the peoples of the world in their fight against imperialist aggression. He paid tribute to the Soviet Union's outstanding role in the modern world, stressing that relations between Cuba and the USSR were a model of bilateral revolutionary and internationalist relations.

In his speeches, Fidel Castro describes in clear and easily understandable terms what the Revolution has done for Cuba and how it has changed the country. He tells of the Cuban working people's guaranteed right to work, free education and medical services, and about the elimination of social injustice and illitera-

cy. But the Revolution's greatest achievement, he says, is that it has given the people great spiritual values, because it has brought about a change in human relations: instead of being enemies, men become brothers, with an urge to work together and capable of self-sacrifice for the sake of others.

The Cuban Revolution eliminated the exploiting classes of landowners and capitalists, and the domination of foreign, chiefly American, monopolies, and carried through a land reform, nationalised industry, trade, transport and banking. The well-being of working people has been improved, unemployment and illiteracy have been done away with, while education has become universal and free of charge. Fidel Castro, however, makes no secret of the difficulties facing Cuba, notably in the economic sphere.

He points out that these difficulties are rooted in a number of objective factors, among them the country's economic backwardness inherited from imperialism, the relative scarcity of her natural resources, the need to withstand the economic blockade and the aggressive moves of imperialism. He also adds that the reasons for these lie in some of the mistakes made in the process of socialist construction.

An important aspect of Fidel Castro's speeches is his consideration of the problems of directing the Cuban Revolution, and assessment of the importance and role of the Communist Party, the country's leading political and organising force. Although its way to power was complicated and unusual, unprecedented in the history of the communist movement, the Communist Party of Cuba has succeeded in carrying the masses with it, thereby confirming the immutable proposition about the need for Marxist-Leninist leadership of society in the struggle to build socialism.

A source of the Cuban Revolution's strength and invincibility has been the support of the broad masses

of people and their trust in the Communist Party and the Revolutionary Government. Relying on this support and trust, the Communist Party and the Revolutionary Government of Cuba have drawn, through the mass organisations, large sections of the people in the work of state administration and fulfilling the key tasks facing the country.

Fidel Castro has sharply criticised those who talk of bourgeois "democracy" in an effort to obscure the class consciousness of the working people. He says this is a fairy-tale about Little Red Riding-Hood for nursery school children. In his talk with students of the State Technical University in Santiago de Chile he said: "Our revolution is not perfect. No, we have not yet reached the highest form of government. We have not yet reached the form of expression which could be called democracy, the new proletarian democracy. But we say that in this country the people feel themselves to be part of the Revolution, part of the state. In this country there is a solid union... Man has acquired a new dignity, a new dimension". (*Cuba-Chile*, Havana, 1972, pp. 447-448.)

The strength of the Revolution, Fidel Castro has repeatedly said, lies in its unity. He said: "The Revolution is the art of uniting its forces; the Revolution is the art of cementing the forces to carry on decisive battles against imperialism" (*Ibid.*, p. 268). One of the factors determining the success of the Cuban Revolution was the policy of strengthening the unity of the revolutionary forces, in which the working class, the most advanced force of our day, has had the decisive role to play. It is thanks to the working class that the Party has succeeded in uniting most of the forces of the other classes, above all the peasantry, the students, intellectuals and the petty bourgeoisie.

Fidel Castro's speeches are a vivid reflection of the socio-political changes going on in Latin America, and contain a profound and precise as-

essment of the qualitative shifts taking place in the arrangement of forces in that part of the world. He says that the economic and social situation in Latin America is now so critical, that the contradictions between the peoples of the continent and imperialism are now so strong that it is safe to say that there is a new revolutionary situation favouring the growth of a national-liberation upswing.

In this context, Fidel Castro has specifically stressed the historic importance of the successes of the revolutionary movement in Chile. He said: "The Chilean experience is a singular historic experience. The peoples turn their eyes to Chile in order to see, in order to learn... For the first time revolutionaries are trying to carry out the revolutionary process in a legal, constitutional way within the framework of the very laws established by society, that is, the reactionary system; by means of the same machinery, the same forms that were created by the exploiters to maintain their class domination... We express our solidarity with this process, with the men who have chosen this way. We understand them and give them our moral support". (*Cuba-Chile*, Havana, 1972, pp. 442, 475).

Fidel Castro has repeatedly stressed that the way the revolutionary transformation of society runs, peacefully or otherwise, ultimately depends, on the one hand, on the resistance of the reactionary classes, and on the other, on the strength of the working class, and on the unity and cohesion of the whole anti-imperialist movement.

In his speeches, Fidel Castro says that while the forms of the revolutionary process are bound to differ because they are determined by specific conditions in each country, the basic content of the process is identical. Referring to the examples of Cuba and Chile, he said: "The forms of the revolutionaries' advent to power were quite different. As for their general features, we must in the first place note their common purposes:

their common economic, social and humanistic objectives. Further, we can say that they have a common philosophical conception, a common ideological conception, let us say, a common political doctrine. It is undoubtedly the workers, inspired by Marxism, the political doctrine of the working class, that are unquestionably the main leading force in the Chilean process. In both processes, the role of the working people is fundamental and decisive" (*Cuba-Chile*, Havana, 1972, p. 336).

Proceeding from this assumption, Fidel Castro has repeatedly stressed that the Cuban Revolution is not some kind of model which should be exported and blindly copied in other countries. Revolutionary experience cannot be borrowed mechanically, because it is connected with the specific conditions in each country, the level of its development and the relation between the class forces. Fidel Castro has drawn attention to the great harm done to the revolutionary movement by dogmatism and sectarianism, and insisted on the need to fight these.

When dealing in this context with the future of the Chilean revolutionary process, Fidel Castro pointed to the need to carry on the broadest ideological work among the masses, seek to win them over for the revolutionary cause: "If you want to know my opinion, the success or failure of this unprecedented process will depend on the ideological struggle and on the struggle of the masses, it will depend on the skill, the art and the scientific training of the revolutionaries in the fight for the unity of the forces, for the growth of their ranks, and in the struggle for the middle sections of the population. After all, in our countries, which are relatively developed, these middle sections are numerous and are in many instances susceptible to lies and deceit. Victory in the ideological struggle today can be achieved only by means of the truth, by means of arguments, by means of reason. That is incontestable." (*Cuba-Chile*, Havana, 1972, p.

481). He adds that the struggle must be waged vigorously. He says: "We must not let our enemies take the initiative. The struggle of classes has its own laws... In the class struggle, the revolutionary forces must be constantly on the offensive. That is a historical law which is applicable to any country in any circumstances". (*Ibid.*, p. 510).

Elaborating on the question of the proletariat's allies in the revolutionary struggle in Latin America today, Fidel Castro has remarked on a number of new phenomena. In the recent period, he said, progressive trends have appeared within the Christian movement which are nearing revolutionary positions and whose spokesmen have come out resolutely in support of the liberation of Latin America. In this context, Fidel Castro noted: "We welcome, sympathise with and put a high value on the movement which has been developing among Christians in the last few years. We feel it is of great importance for the liberation of our peoples, for the revolutionary struggle. We must accept this movement with respect, with satisfaction, and it is our duty, the duty of revolutionaries, to encourage it." (*Ibid.*, p. 269).

In his speeches, Fidel Castro has ardently called on the creative intellectuals of Latin America to take an active part in the fight for the people's cause; he has paid much attention to the subject of the internationalist brotherhood of the Latin American peoples, the need for their unity in the fight to achieve their national liberation and social emancipation.

About the Cuban people's internationalist feelings, Fidel Castro said: "In a sense we feel that we are children of a whole community, a part of the world which is much larger than Cuba and Chile, and which is Latin America.... The time will come... when reactionary ideology will collapse, when narrow-minded nationalism and ridiculous chauvinism, which are being used by the reactionaries and the imperialists to

maintain hostility and division among our people, will be routed." (*Cuba-Chile*, Havana, 1972, pp. 483-484).

The speeches by Fidel Castro, leader of the Cuban Revolution and an outstanding leader of the international communist and working-class movement, give a good idea of the

B. МАСЛЕННИКОВ. *США: государство и наука*. М., изд-во «Наука», 1971, 218 стр.

V. MASLENNIKOV, *USA: The State and Science*, Moscow, Nauka Publishers, 1971, 218 pp.

The author draws on a wealth of facts to show how US monopolies utilise the bourgeois state machine for maintaining the necessary pace and scale of scientific research and for subordinating scientific and technological progress to bourgeois class interests.

The most general circumstance that has made possible capitalist state interference into the sphere of science is the high socialisation of production and of science itself, which is becoming today a powerful productive force. The process of socialisation and monopolisation in the United States has extended even further in science than in production.

But contemporary progress in science and technology calls for such enormous capital investments that despite the high concentration of private capital, it is at times unable to make these investments and is therefore obliged to seek help from the government. The US monopolies are trying to solve this contradiction between the demands of scientific and technological progress and the spontaneous nature of capitalist economy by steeply increasing allocations for scientific research at the expense of the tax payers, i.e. of the working people. Such is the social essence of the state measures taken in the interests of the US monopolies, and directed at sti-

policy pursued by the Communist Party of Cuba in carrying out its socialist transformations and of how the Cuban Communists apply the basic principles of the Marxist-Leninist theory of revolution in their own country.

O. Darusenkov

mulating research and utilising the achievements of science.

This policy of the state in respect of science has been comprehensively considered by the author.

A series of factors favouring the expansion of research (high level of development and concentration of production, diversified structure of the economy, market capacity, state control in scientific development) enabled the US to retain its leading position among capitalist countries also in this sphere. Thus, by the beginning of the seventies per capita outlays on research and development were \$30-50 in West European countries and \$132 in the USA. In the industrial production of the capitalist world the USA's share is approximately 40 per cent, as against the 70 per cent it accounts for in the overall spending on research in the capitalist countries (in terms of official rates of exchange).

US imperialism uses this priority for competition on the world market and for economic subjugation of "junior partners". The spring-boards chosen for the invasion by American capital are the promising, and consequently the more profitable, fields of science, technology and future economic development. Suffice it to say that most of the computers in Western Europe have been manufactured at US-controlled plants. But in many fields of science and technology Western Europe and Japan are challenging their American rival, while in metallurgical, chemical, optical, shipbuilding and power research they are even ahead of the US. This widens the sphere of keen competition between the imperialist states.

The book describes the diverse forms of economically harmful exploitation by the US of the scientific and technological resources of capitalist states as well as countries of the Third World. One of such forms is the "brain drain", stimulated by the immigration laws and various measures of the US government; 160 thousand scientific workers, engineers and physicians came to live in the USA in the period between 1949 and 1970. It is noteworthy that this drain of scientific and technological workers costs the developing countries more than double the sum they receive in American aid for training such personnel.

In the chapters on the development of science in the USA the author gives a detailed picture of the centralisation of government control in research. This process, as the facts confirm, is directly influenced by the scientific and technological achievements of the socialist countries and above all of the Soviet Union. The launching of the world's first man-made satellite, Sputnik I, caused a special panel of scientists to be set up under the President of the USA. It consists of advisory bodies headed by President's special assistant for science and technology. Many prominent scientists from universities and industrial corporations participate in its activities along with direct representatives of big business.

The social contradictions in the US, which in recent years have become particularly acute in connection with imperialist aggression in Vietnam, have also affected the technoscientific intelligentsia. Scientists, who stand for the application of scientific achievements for peaceful and humane purposes only are becoming politically more active. The contest between progress and reaction is growing more heated in the sphere of science, which was once thought to be the domain of "pure reason" and has now become the scene of fierce ideological and political collisions.

In this connection the prosecutions of progressive scientists should be regarded as a component part of the "state scientific policy" pursued by the US ruling circles.

An analysis is made of the diverse forms and methods of state control over scientific and technological progress in the USA. The author notes that while it has certain positive aspects it should always be borne in mind that the mechanism of state control in science is irrevocably stamped with the features of the socio-economic structure of the USA, the capitalist nature of its economy, based on private property and the spontaneous will of the market, all of which weakens this control. In the USA there is practically no single national centre on planning and management of scientific and technological progress; even the enterprises and scientific institutions that are state-controlled have no such centre. The functions of the President's panel of scientists for all its importance are largely advisory. The organisation pattern of state control in scientific research is extremely involved and contradictory, while the much acclaimed system of "pluralism"—a multitude of independent programmes conducted by the various Departments results at times in unnecessary duplication and coordination-gaps between the relevant bodies.

Although the state policy pursued in the present historical situation in the USA does make for a certain rationalisation of the development of science and technology the bourgeois state is unable, nor does it want to overcome the main obstacle in the way to rationalising the management of science. This obstacle is the competition between private companies and the rivalry between individual Departments and agencies, backed again by powerful monopoly groups reaching out for profitable government orders.

Even in this curtailed form the system of state control and financing of science is causing discontent

among the orthodox partisans of "free capitalism", who proclaim this "state-monopolistic" process the "nationalisation" or "socialisation" of science. For the monopolies such "nationalisation" is a convenient and a profitable form of access to the state feed-bag.

The author's analysis of the distribution of federal allocations for research shows that up to three-fifths of these allocations (some \$10,000 million in 1971/72) come through the system of contracts with private industrial corporations. These corporations (especially those belonging to the military-industrial complex) reap the main fruit of the progress in science and technology pocketing a rich harvest of superprofits from this business in science. More than half of the many-billion dollar allocations for research and development is given on contracts by the US Department of Defence to only ten monopolies of the defence industry. In this way the government orders for research promote the further concentration of the country's entire scientific and technical and economic potential in the hands of a few monopolies.

The other feature of US state control in science is the tendency of government bodies to promote primarily such scientific and technical work as has the greatest military significance. The aircraft missile and electrical industries get 85 per cent of all state allocations for industry. This policy has a negative effect upon scientific and technological progress and causes grave disproportions in its development.

The advocates of American imperialism maintain that the impact of militarisation upon the national economy is a favourable one because, allegedly, the major discoveries and inventions, also employed for peaceful purposes, would not have been possible without the help of military agencies. True, the militarisation of science in the USA has, to a certain extent, stimulated scientific and tech-

nological research as a whole, and some corporations while fulfilling military orders are also putting out non-military goods. However, the facts show that most military programmes provide no "waste products" useful in civil industry. Even given other equal opportunities science would advance more rapidly and its impact upon the economy would be more effective if the forces and means spent on the arms race were employed for peaceful purposes. It goes without saying that the militarisation of science cannot be considered the internal affair of the USA only, for it harbours a threat to the cause of world peace, adversely tells on the development of world science and forces other countries to direct part of their scientific effort on defence.

The situation in the USA is indicative of the widening gap between the possibilities provided by scientific-technological and economic development and the realisation of these possibilities in conditions of capitalism. The objective prerequisites created by contemporary science and technology for raising living standards rapidly are not utilised. More than that, in capitalist conditions this progress in many cases spells a worsening in the living conditions of factory and office workers and also of experts in science and technology, who are forced out of the process of social production. It is one of the paradoxes of America today, that while there is a shortage of scientists and engineers of certain categories unemployment is widespread among them.

All this, the author rightly concludes, points to the incurable defects of state-monopoly capital, which hampers the development of scientific and technological progress in the interest of peace and the happiness of millions.

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D. (Econ.),
Y. Rigin,
Cand. Sc. (Econ.)

Л. РОЗАНОВ. *Социально-экономические и политические аспекты деятельности Всемирной организации здравоохранения*. М., изд-во «Наука», 1972, 184 стр.

L. ROZANOV, *Socio-Economic and Political Aspects of the Activity of the World Health Organisation*, Moscow, Nauka Publishers, 1972, 184 pp.

Historical development has engendered problems that are of a global nature and whose solution therefore requires the joint efforts of many, if not all the countries of the world. One such problem is the elaboration of international programmes to combat diseases. The coordination of these programmes is carried out by the World Health Organisation (WHO), a major specialised UN agency whose members include nearly all the states of the world. The book under review analyses some of the main aspects of this organisation's activity in the more than two decades since it was founded.

The author focusses attention on the political and socio-economic problems of world health, with which WHO concerns itself. While he rightly notes the primary importance of the economic factor in promoting cooperation in this sphere L. Rozanov shows at the same time the obstacles standing in the way to this, and that they are caused by definite social conditions in capitalist countries and in many states that have comparatively recently thrown off the colonial yoke.

As distinct from national health bodies, WHO is concerned primarily with global problems, most of which are not purely medical. Urbanisation, sanitation, traumatism are among the many issues tackled by various international organisations and are studied not only by medical men but also by economists, sociologists and jurists.

The book makes the point that mankind could rid itself completely of a number of diseases were it not

for certain social factors such as chronic malnutrition, antisanitary conditions, the lack of the elementary conditions needed for a normal life. The situation is aggravated by the shortage of medical personnel (in a number of countries of Africa and South-East Asia, for example, there is often only one doctor for every 90,000 of the population). "It is impossible to solve questions of health protection by means of medicine alone," the author writes. "Medicaments cannot compensate for malnutrition and emaciation is the direct or attendant cause of the death of millions of people, especially children, every year."

Drawing on concrete data Rozanov shows that social diseases exist not only in countries with a poorly developed economy and general low living standard, but also in developed capitalist states. In a number of West European countries, for instance, the number of tubercular cases far from declining has increased. In the USSR and other socialist countries, on the contrary, cases of this disease are becoming more and more rare.

The book rightly criticises those bourgeois authors who approach the health problem from the position of "rich" and "poor" countries, leaving out of account the acute social and class antagonisms characteristic of the states concerned.

The author stresses that one of the most rational ways of combating the diseases of our time would be to use for health needs the funds released by discontinuation of the arms race. He writes in this connection: "More than 4,000 billion rubles have been spent on wars alone in the present century. This sum could feed the world's population for 50 years free of charge or provide 500 million families with well-built houses."

Rozanov examines the different stages in the development of world health measures and how they are affected by politics. Political intrigues often hampered the cooperation of countries and told on useful medical

initiatives. Thus, for political reasons the establishment of an international quarantine was delayed for a long time and the activity of sanitary councils was paralysed.

The book most conclusively shows that in their activity in the United Nations itself and in its specialised agencies the Soviet Union and other socialist countries are concerned first and foremost with resolving the vital problems of our day in the interests of the people. The resolutions on health problems connected with radiation, on prohibition of nuclear tests, on the doctors' role in the

maintenance and strengthening of peace, on the liquidation of the consequences of colonialism in the sphere of health—such are the major decisions taken by WHO on the proposal of the countries of the socialist community. The fight to make WHO a universal organisation, and against racism and neocolonialism is ever in the centre of attention of the USSR and other socialist states.

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В. ТУМАНОВ. *Буржуазная правовая идеология. К критике учений о праве*. М., изд-во «Наука», 1971, 381 стр.

V. TUMANOV, *The Legal Ideology of the Bourgeoisie. A Critique of Doctrines on Law*, Moscow, Nauka Publishers, 1971, 381 pp.

The monograph examines law as a specific form of expression of a definite ideology and gives a critical analysis of the so-called "juridical outlook". The author shows the process of formation and development of the bourgeoisie's legal ideology, the present state of juridical thought in the West, and acquaints the reader with the basic theoretical and ideological problems of law. He explains how the main trends of contemporary bourgeois philosophy are reflected in the bourgeois theory of law. Especially interesting in this respect are the sections dealing with existentialism in law, the phenomenalist school of law, logical positivism in law, and so on.

V. Tumanov's book analyses the ideological functions of the bourgeoisie's general theory and philosophy of law. It meticulously exposes philosophical idealism—the premise for the bourgeois theory of law. Absolute reliance on "legal principles" and

on juridical form is typical of the idealistic bourgeois outlook. These views have found reflection in the hypertrophied role of juridical science. According to Kant, as is known, in natural science there is as much science as mathematics; the neo-Kantian jurists say that in the social sciences there is as much science as jurisprudence.

The attempts of the bourgeois jurists to set the tone in the social sciences and to "juridicise" them, as the author emphasises, have proved to be ungrounded. Today many bourgeois political scientists believe that political research has been enlivened by stripping it of the dogmatic canons of jurisprudence.

The book shows the reasons why bourgeois literature on law tends not only to distinguish between, but to oppose the "general theory of law", the "sociology of law" and the "philosophy of law" to one another, regarding them as distinct scientific disciplines. Criticising this stand, the author emphasises that unlike the one-sided approach to law—a feature characteristic of each of these disciplines—the Marxist general theory of law combines the philosophical, sociological and juridical approach to legal phenomena.

A special chapter is devoted to pluralism in the bourgeois doctrines

on law. This chapter seems to be outside the scope of the science of law, for pluralism is a common problem in bourgeois social thought. V. Tumanov makes use of Soviet publications dealing with this problem. He justly criticises the oversimplified attempt to link the pluralism of bourgeois legal schools exclusively or predominantly with social heterogeneity, with stratification of the bourgeois class. Without denying the influence of this factor (it is particularly significant during the rise of some schools), he points out that pluralism stems from the diversity of closely interrelated socio-political, historical and epistemological factors. The three groups of factors are analysed in the chapter, which, in particular, gives an eloquent description of the general evolution of bourgeois doctrines on law, of the historical specifics of this evolution in different countries, of the complex legal superstructure as a subject of cognition, and some other issues.

The author draws attention to the latest "integrative" tendency—the unification of the bourgeois schools into a front of struggle against the Marxist-Leninist doctrine on the state and law. In this context, Tumanov criticises the "integral jurisprudence" concept propounded by J. Hall, a well-known American jurist.

The book makes a detailed study of the "juridical outlook" of the bourgeoisie. Its symptoms are an idealist interpretation of law as the fundamental principle of social life ("laws can do anything"), and legal fetishism as manifested in juridical positivism, which reduces the tasks of juridical science to a formal and dogmatic description of the law in force and to an elaboration of purely juridical structures. According to this standpoint jurisprudence merely describes the "juridical cover" of the established social relations, and perpetuates bourgeois law by rejecting all radical social changes whatsoever. These views on law, which are alien to materialist dialectics, form the ba-

sis of the anti-communist thesis on the "incompatibility of law and socialism", implying that everything that does not resemble the classical model of the bourgeois legal system is unworthy of being called law.

At the same time, the conditional character of the term "juridical outlook" is to be emphasised, for the outlook of a whole class cannot be adequately expressed in terms of purely juridical concepts. A general world outlook requires philosophical interpretation, which is beyond the bounds of a juridical approach proper. Here we cannot do without philosophical categories. That is why accentuation of the role of law is but one of the characteristics of the bourgeois world outlook. But the role of law should not be exaggerated, the more so since the imperialist bourgeoisie obviously wants to break away from the rigid surveillance of the law and is not at all inclined to look at the world through the optic of legal jargons.

The author shows the ideological sources of the so-called "new" trends in the bourgeoisie's general theory of law, which are in reality various doctrines aimed at "overcoming" Marxism.

V. Tumanov remarks that the crisis of the bourgeoisie's political and legal views is manifested in its attempts to infuse new life into its traditional notions of the "unlimited possibilities" of law and political power; they are trying to do this by forming a "movement of free law", with the leading role being played by magisterial discretion, not by the law (justice without law). The same aim is pursued by the bourgeois science of law when it justifies the prerogatives of the executors of power to the detriment of the legislative, representative and elective bodies, when it rejects such a key concept in philosophy, politics and law as legality, when it proclaims the primacy of coercion in "political realism", and so on.

The book draws an interesting pa-

rallel between the crisis in physics, which Lenin analysed in his *Materialism and Empirio-Criticism*, and the legal crisis of the late 19th and early 20th centuries, which reflected the search for a methodological reorientation in bourgeois social science. That period witnessed a widespread revision of the seemingly unshakable dogmas of jurisprudence, the loss by the theory of law of the monist character inherent in it since the days of positivism, and the spread of relativism in juridical science and of juridical agnosticism. The author says that the crisis in the legal ideology of the bourgeoisie has proved to be more protracted than the crisis in physics. This is due to the differences in the status and subjects of the natural and the social sciences, and to the fact that the influence of the ruling classes on the orientation and conclusions of juridical science deforms the process of cognising legal reality.

By making a detailed analysis of the various trends in the bourgeois theory of law, the author comes to the conclusion that the widespread idea of the "primacy of law" is the keynote of anti-materialist thinking

of all these trends, which otherwise differ from one another. It is noteworthy that the bourgeois doctrines and schools place "regenerated" natural law and "legal state" in the foreground.

Answering the question why this happened, the author analyses the socio-political and ideological contradictions of the first postwar decade, when the doctrine of natural law was at the height of its influence in the West. The militant clericalism of that period countered the positivist principle "law is law" with the neo-Thomist doctrine about an ideal world of higher spiritual principles and values to be followed by the legislator. Notwithstanding their common idealistic basis and their apologia of capitalism, the numerous schools of natural law differ in their political trends. So we cannot but agree with the author that the amorphousness of the guiding principles of this doctrine has made it a platform for diverse political trends.

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О. ДРЕЙЕР. *Культурные преобразования в развивающихся странах*. М., изд-во «Наука», 1972, 270 стр.

O. DREYER, *Changes in the Culture of Developing Countries*, Moscow, Nauka Publishers, 1972, 270 pp.

O. Dreyer devotes his work to one of the most topical subjects in the Third World, his starting point being that rapid economic and social progress cannot be attained without profound changes in culture.

He describes the state of science, education, health service and the mass media in these countries and comments on the well selected data,

which makes the book all the more valuable, since statistics in these countries are often unsatisfactory. To treat the major aspects of the subject theoretically, O. Dreyer draws on a vast variety of facts.

The study concentrates on the role the state plays in encouraging education, in developing science and public health. Planning in these fields has become centralised especially in view of the need for training labour required for modern economy. When deciding upon the tasks set in current development plans, the governments have to give special consideration to the surmounting of obstacles in the way of cultural reforms and to look for the best means of achieving their goals.

The advances in education, public health, science and technology in the post-independence period prove that the colonial yoke was the main hindrance. The author notes that imperialists are displaying growing interest in the cultural upswing of the Third World, and shows that they try to put cultural development under their control and to influence the attitudes of youth.

Already now the cooperation with socialist countries is making itself felt on the cultural development of developing nations. The book demonstrates the vast significance of Soviet assistance to the Third World countries in their cultural development. In 1970, out of the 714 projects built, being built or planned with Soviet technical help, 144 are meant for educational, cultural, public health and sport purposes. Of them 88 have already been commissioned. More than 215 thousand workers, technicians and engineers have been trained in the developing countries with Soviet help.

The author made a comprehensive analysis of social factors that hamper or favour radical changes in education and cultural development in general. Rightly pointing to the conservative traditionalism of the propertied classes and the high clergy, he stresses the importance of preserving valuable democratic and materialistic elements of traditional culture and exposes vulgar modernism and its pernicious effect on cultural development.

In describing the achievements by the young countries, the author does not fail to reveal the difficulties hindering their advance. He notes the outwardly paradoxical fact that success is accompanied with grave diffi-

culties for the young states. For example, the drive against illiteracy and "educational explosion" have caused the acute shortage of schools, teachers, text-books, etc.

The Third World is a diverse one. The processes common to them are dissimilar in form and proceed unevenly. The book contains an analysis of the cultural situation and its features in India, Egypt, Iran, Nepal, Butan, Sikhim, and also in Pakistan and Bangladesh.

The vastness of material on India is due both to the size of the country, and to the complex social and class aspects of cultural reforms. This country demonstrates the uneven pace of development of her educational and public health systems. Thus, the slow progress of elementary and secondary education is especially noticeable against the background of the rapid development of higher education. The large proportion of private schools and the energetic measures taken by the bourgeoisie to influence intellectuals make difficult the cultural reforms and the democratisation of educational institutions.

As the book under review shows it is not enough to find the best ways and means of popularising up-to-date knowledge. The situation is no less complicated in the political and ideological fields. The diabolical powers of ignorance, prophetically noted by Marx and Engels, not only obstruct the spread of knowledge in the East, but also try to emasculate this knowledge. This affects especially the dissemination of a scientific and progressive world outlook without which a true cultural revolution in the Third World is impossible.

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И. ГРИГУЛЕВИЧ. «Мятежная» церковь в Латинской Америке М., изд-во «Наука», 1972, 411 стр.

I. GRIGULEVICH, *The "Rebellious" Church in Latin America*, Moscow, Nauka Publishers, 1972, 411 pp.

The book studies the rise of the "Rebellious" Church—a trend which, taking account of the revolutionary changes in the world, calls for a revision of the traditional reactionary socio-economic concepts of the Catholic Church in Latin America, one of the main Catholic-dominated regions of the world. It shows that Latin America remains a mighty bastion of Catholicism, where 200,000 priests and monks, 1,000 bishops and 15 cardinals are trying to keep nearly 250 million people under the influence of the Church. Catholic trade unions, according to their leaders, have a membership of 5 million. In the majority of the Latin American countries there are Christian Democratic Parties, which hold the reins of power in Venezuela and, until recently, in Chile too; they strongly influence government policy in some other countries. In 1965 Catholic universities accounted for 20 per cent of the total enrolment of students, and Catholic schools—for 60 per cent of the total number of pupils attending secondary schools. In this subcontinent the Church still possesses enormous wealth, including immense landholdings.

Using abundant historical material, the author shows the close relationships between the Catholic Church in Latin America with the most reactionary forces: the land oligarchy and the big bourgeoisie, which is associated with the USA and the military. He pays special attention to the anti-national role played by the Catholic Church in Cuba before and immediately after the revolution, when the reactionary forces had not yet lost the hope of restoring the old order there. The author's conclusions are

confirmed by R. Gonzales, leader of the underground clerical subversive organisation, the Revolutionary Popular Movement, who after his arrest admitted that 95 per cent of all clergymen in Cuba supported the counter-revolution.

After the Second World War, the unreserved support of the Catholic Church for the reactionary dictatorial regimes brought it material wealth. But its prestige and authority among the people fell, for they regarded the clergy as an ally of the exploiter classes. The Church, being sensitive to political changes, did not fail to notice the danger it would have to face if it continued to follow its former political line. That is why it made serious amendments in its doctrine and practice. This tendency to "renovate" was clearly manifested in the decisions of the Second Vatican Council held in Rome in 1962-1965; and the author is quite right when he links the beginning of the "new course" of the Church in Latin America with this Council. True, "rebellious" elements among the Catholic clergymen in the Latin American countries had appeared long before that time: for instance, the Mexican priests Hidalgo and Morelos became leaders of the national-liberation war waged by the Mexican people against Spanish colonial oppression in 1810-1815. They were excommunicated from the official Church, and for more than a hundred years were listed as clerical criminals. It was not until the "renovating" tendencies came that they were rehabilitated.

The book traces the stand of the Latin American clergy at the Second Vatican Council. The speeches made by Chilean Cardinal R. Silva Henríquez, Brazilian Archbishop Helder Câmara, Mexican Bishop Méndez Arceo and others prove their deep concern for the place of the Church in the events sweeping the "seething continent". I. Grigulevich shows that even the Jesuits, who usually form the extreme Right wing of the clergy, have changed their tactics and begun

to champion social reforms actively. Especially interesting is the analysis of the views held by the Jesuit priests Hutart and E. Pin, who, in their book entitled *The Church and the Latin American Revolution* (New York, 1965), sympathise with communist teachings, welcome revolutionary changes, and call on the Church to hasten to lead these changes so as not to be left out of social development. Grigulevich emphasises that a section of the Catholic clergy did not confine itself to verbal condemnation of the existing social order and Church policy. The more progressive priests have taken the path of active struggle for revolutionary changes. Of great interest in this context is the part of the book about the life and activity of the Reverend Camilo Torres, Colombia's national hero who took up arms against the punitive forces and died in a battle with the Green Berets early in 1967. His death has led to the establishment of the Camilo Torres Movement, which has embraced all Latin American countries. Hundreds of ministers of religion took part in the struggle against United States imperialism and the anti-national governments of the bourgeoisie and landowners.

I. Grigulevich studies in detail the steps taken by the higher Church authorities to prevent the spread of rebellious sentiments among Latin American clergymen. In August 1968 Latin America was for the first time visited by Pope Paul VI. He attended the Second Latin American Episcopal Conference, which met in Medellin (Colombia). Addressing the Conference, he attacked the "rebels" who challenged the Church authorities and who allegedly rejected the basic tenets of Catholic philosophy, and he particularly condemned those who tried to combine Catholic belief with revolution. The Pope's speech delighted the Latin American oligarchy. But gone were the days when a threatening shout was enough to subdue the disobedient: out of the 130 delegates to the Conference there

were 25-30 "rebels" who stubbornly upheld their point of view on the role of the Church in society.

Analysing the decisions of the Conference, which practically determined the political and social line of the Church in subsequent years, the author justifiably describes it as "Christian reformism". He examines the practical attempts to implement the theory of "Christian reformism" in Chile and Venezuela. The Chilean variant of "Christian reformism" pursued by the E. Frei Government in 1964-1970 is known to have been a complete fiasco: instead of leading to class peace it further aggravated social contradictions and increased popular discontent. The result was the victory in the 1970 presidential elections of the Left forces united in the Popular Unity Bloc, whose government, despite difficulties, carried out important anti-imperialist and anti-capitalist measures.

The logic of the revolutionary movement in the Latin American countries is bringing the progressive-minded priests to the ranks of the active fighters for social reconstruction. Although a moderate trend of reformism has gained the upper hand in the Latin American clergy, the voices of the "rebels" are heard more and more. In Chile, as is known, the Left wing of the Christian Democratic Party has broken away to form a new party—MAPU (United Popular Action Movement); it has joined the Popular Unity Bloc and declared Marxism-Leninism to be its ideological platform. In Peru 400 priests publicly defended government measures enabling the workers to participate in the management of enterprises and in the distribution of profits. Archbishop Helder Cámara, leader of the progressive section of the Brazilian clergy, continues to be active as a preacher of "rebellion".

In examining today's Catholic Church in the countries of Latin America, I. Grigulevich uses exquisite factual material, a part of which is published in a scholarly work for the

first time. He delves into documental sources of the Latin American episcopate, the Christian Democratic Parties and Christian trade unions, and this will undoubtedly contribute to the further elaboration of the history of the Church in Latin America.

The book also examines the state and prospects of development of the various Protestant Churches and the separate sects, as well as the syncretic (Afro-Christian) cults typical of

Новая история Китая. М., Изд-во «Наука», 1972, 636 стр. + иллюстрации.

Modern History of China, Moscow, Nauka Publishers, 1972, 636 pp. + ill.

The authors of this collective monograph, prepared by the Institute of Oriental Studies, USSR Academy of Sciences (edited by S. Tikhvinsky, Corresponding Member, USSR Academy of Sciences), divide the modern history of China into four major chronological periods, each of which is dealt with in a special section of the book: 1644-1839—"The Feudal Ching Empire in the 17th-18th centuries"; 1840-1895—"The Penetration of the Capitalist Powers into China. The Peasant Wars and the Uprisings of the Non-Han Peoples"; 1896-1905—"The Transformation of the Ching Empire into a Semicolony of the Imperialist Powers and the Start of the Chinese People's National-Liberation Struggle"; 1906-1919—"The Overthrow of the Ching Monarchy and the Establishment of the Chinese Republic".

This periodisation is an undoubted accomplishment of the group of authors, because its framework is determined on the basis of the regularities governing the development of universal history. In contrast to the widespread official tradition in Chinese historiography of considering the history of modern China from 1840, this

Brazil and many island nations in the Caribbean basin, that is, of the areas with a big Negro population. These churches and sects embrace only a small section of the population in Latin America and do not have a powerful centralised administration, hence the influence on social life which the Catholic Church exerts.

Specialists on Latin America will find valuable materials in the book.

N. Larin

approach by the Soviet authors, we feel, gives a deeper and more precise insight into the main stages of the development of Chinese society, tying them in with the general processes in the countries of Asia, Africa and Latin America on the eve of and during the colonial expansion of the capitalist powers.

For China the start of the new period of world history coincided with the invasion of the country by the Manchus and the collapse of the Chinese national state, the Ming Empire. The impact of foreign oppression on the life of the Chinese people as of the other peoples included into the Manchu Empire was a specific feature of the development of this largest country in the Far Eastern region in the modern period. While the Chinese feudal élite did act as the mainstay of the Manchu domination, the Empire catered chiefly for the interests of the Manchu ruling élite. Their class alliance was aimed at suppressing the resistance of the exploited masses in China and in the "external provinces" of the Empire.

The authors are quite right in concentrating on the struggle of the Chinese people and the other peoples included within the Empire against the Manchu domination. The armed resistance lasted for over 40 years on the territory of China proper, in Mongolia and Jungaria, and on other territories inhabited by non-Han peoples. These facts refute the official Chinese version that China had beco-

me a united multinational feudal state over 2,000 years ago, that it had always been a multinational state existing in the world regardless of the comings and goings of feudal dynasties and the ruling nationalities in the country. This kind of idyllic "solution" for the national problem on a feudal basis has nothing in common either with the actual history of feudalism in China, or with the Marxist approach.

The central theme of the second section of the book is the clash between the Ching Empire and the Western capitalist powers, which launched their colonial aggression against China in the 1840s. Let us note that bourgeois students of China have been trying for some time to explain the origins of the "opium wars" and the establishment of the system of unequal treaties as a result of these wars as stemming from the survivals in the political structure of the Ching Empire of various traditional Chinese institutions. A study of the vast factual material brought together in the book shows that the fundamental origins of the conflict did not at all lie in any absence of mutual understanding between the "men of the West" and the "men of the East", but in the contradiction between the urge of the capitalist powers to effect colonial seizures and the attempts on the part of the Manchu élite to maintain its privileges and feudal order at any price. Meanwhile, the broad masses of the Chinese working people suffered equally from the oppression of both exploiters.

The authors note that Russia was the only power which resolutely banned its subjects from trading in opium in China. This was a reflection of the distinctions between the policy of Russia and the colonialist urges of Britain, France and the USA. The Russian Government, before Russia took the path of imperialist development at the turn of the century, pursued towards China a policy of maintaining good-neighbour relations

along the borders and mutually advantageous trade.

The Western colonialists' invasion and the Ching regime's social and national oppression generated a powerful tide of resistance among the broad masses of the Chinese working people, which took the form of a great peasant war. For all practical purposes, the Ching Empire in the 1850s and 1860s was split into two contending camps: the camp of the governmental reaction, supported by the colonial powers, and the camp of the revolutionary peasantry, which set up its own "celestial state of great prosperity"—*Taiping tienkuo*.

As one goes into the details of the civil war described in the book and considers the programme and measures of the Taiping movement, one comes to realise with fresh force how right Chinese Marxist historians were in warning about overemphasis on the boundless revolutionary spirit of the peasantry, and calling for a study of the objective reasons for the weakness of peasant movements and their mistakes and defeats. Otherwise it is impossible to understand how the corrupt Ching monarchy, so thoroughly hated by the broadest social sections, and suffering one defeat after another at the hands of the foreign powers, was still capable of resisting the surging masses for over a quarter-century and eventually to stay in power.

In their efforts to learn the lessons of the defeats inflicted on feudal China by the Western powers and also of the experience in suppressing popular movements, the ruling circles of the Ching Empire pursued a policy of "self-strengthening" from the 1860s to the 1890s. Its cornerstone was the re-equipment of the army on European lines, building up of a modern navy, etc. The anti-popular character of this policy in effect helped further to fortify the positions of the capitalist powers in China, to weaken the central apparatus of the Empire, and to generate autonomistic tendencies among regional military-feudal

groupings, who made deals with the imperialists to promote their self-seeking interests.

The defeat of the Ching Empire in the Japanese-Chinese war of 1894-1895 testified to the complete collapse of the "self-strengthening" policy. The attempt to build up the country's military strength at the expense of the people and against the people brought the Ching monarchy to the brink of total disaster. One must accept the authors' conclusion that the basic reason for the failure of the "self-strengthening" policy lay in the fact that it had the reactionary purpose of artificially conserving social relations in the country, even if some of the economic measures connected with this policy did objectively go beyond the framework of feudal social relations and helped to develop the beginnings of capitalism in China.

Thus, China reached the third stage of its modern history without having cast off its feudal fetters, burdened with military and political defeats and labouring under the growing influence of Western colonial policy. It faced the imperialist world, covering up its defenceless condition with the mediaeval doctrine of "pacifying the barbarians with the hands of the barbarians themselves" but already with the embryonic urge to assume an equal place among the leading capitalist powers and perhaps even to secure leadership among them.

In the 1890s, these aspirations of the young Chinese bourgeoisie, a section of the liberal landowning circles and other new sections of Chinese society led to the emergence, on the one hand, of the "reform movement", and on the other, to the start of the revolutionary-democratic trend of struggle. The specific conditions in which the provinces of Southern China developed made the South the cradle of and the base for operations both by the reformists led by Kang Yu-wei, and by the early revolutionaries, rallying round Sun Yat-sen.

From 1898 to 1901, Northern Chi-

na was swept by a powerful anti-imperialist popular uprising of the *Ihotuan*, who took their name from their organisation—Union of Peace and Justice. The Ihotuan movement was a struggle carried on by broad masses of people in China against imperialist oppression. The ruling élite of the Ching Empire managed to use this popular patriotic movement for its own selfish purposes. The imperialist powers, because of their contradictions, were forced to keep the Ching monarchy in power. The authors are quite right in stressing that in that period the objective conditions had not yet taken shape in China for successful completion of this liberation struggle. The advanced class which could give a lead to the movement was not yet there.

But even in the reactionary camp the conclusion was being reached about the need for minimum changes in the state machine. The conduct by the Ching monarchy of the so-called "new policy" (establishment of Western-type ministries, reform of education, trade, etc.) was designed to meet the demands of the foreign powers, for these measures facilitated their political and economic activity in China, and the demands of the moderate circles of the bourgeois-landowner opposition. It goes without saying that the superficial reforms failed to resolve any of the contradictions, even if the changes did affect many aspects of political, economic and cultural life in the country.

One of the most interesting aspects of the monograph is that it gives a broad picture of the growth of the revolutionary anti-Manchu forces both in China itself and among the Chinese communities abroad in the first decade of the 20th century. The emergence of numerous and politically diverse societies and unions, the establishment of dozens of newspapers and journals carrying direct calls for the overthrow of the monarchy and simultaneously sounding nationalistic and Great-Han calls—this who-

le kaleidoscope of events, facts and slogans has been circumstantially analysed by the authors.

The authors' use of numerous sources has helped them to shed strong light on the central event in China's modern history, the bourgeois revolution of 1911-1913, which proclaimed a republic and overthrew the Manchu domination of almost 268 years. The last section of the book deals with the preparation and course of the revolution and the subsequent political struggle between the Republicans and the Right-wing of the landowner-bourgeois camp, which sought to effect a feudal-monarchist restoration.

The authors say: "The revolution showed that the Chinese bourgeoisie was not really capable of directing the anti-imperialist and anti-feudal struggle and leading the people to victory. As for the proletariat, it was yet to take shape as a class and to become an independent political for-

ce, which is why it was incapable of giving a lead to the revolutionary movement.

Although the reactionaries robbed the Republicans of the fruits of revolution, this first country-wide conscious and democratic movement of the Chinese people was of great progressive importance for the future of China. There is a powerful ring in Lenin's assessment of the importance of the Chinese Republic, which the authors quote in the last pages of the book: "No matter what the fate of the great Chinese republic, against which various 'civilised' hyenas are now whetting their teeth, no power on earth can restore the old serfdom in Asia or wipe out the heroic democracy of the masses in the Asiatic and semi-Asiatic countries" (V. I. Lenin, *Collected Works*, Moscow, Vol. 18, p. 584).

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Математические методы в исторических исследованиях. Сборник статей. М., изд-во «Наука», 1972, 234 стр.

Mathematical Methods in Historical Research. A Collection of Articles, Moscow, Nauka Publishers, 1972, 234 pp.

The publication of the first special work in this country on the use of quantitative methods is an event of considerable importance in Soviet historiography. The collection is also of interest because of its concrete historical topics and its consideration of the methods to be used in applying modern mathematical formalism to historical research. In his introductory article, Y. Bessmertny stresses that the broad introduction of quantitative methods ensures not only a more profound study of some problems in the historical process but also the tackling of fundamenta-

ly new problems, like the analysis of social and economic interconnections in society, the identification of the leading factors in fundamental historical processes, the measurement of the intensity of social processes, various classification problems and the like.

An article by K. Khvostova shows a whole complex of diverse, and frequently highly intricate methods in the use of mathematical formalism for studying socio-economic phenomena in the Middle Ages. The article is, in a manner of speaking, an aid in the application of quantitative methods. The author devotes considerable attention to one of the most complex and controversial questions in applying mathematical statistics, namely, the treatment of the fragments of extant documentary material as natural sampling. The author very skilfully interprets Byzantine property-tax registers in a number of monastery villages in Southern Mace-

donia dating to 1317 and 1321 as repeated serial sampling. This is perhaps the first time in historical writing that one of the most interesting methods of classification by many features has been applied. By means of vector analysis, K. Khvostova classifies 1,255 peasant households, taking account simultaneously of six features (size of family, amount of tax, amount of farm allotment, size of land under vineyards, number of cattle and draught animals). She devotes much attention to the method of reconstructing the mechanism of the tax assessment of peasant households, a reconstruction that is carried out by means of correlation analysis, and also by means of simplified operations to calculate frequencies. In some instances, K. Khvostova uses methods borrowed from the theory of information. She also shows the methods in analysing the structure of socio-economic phenomena considered as a system. The structure of phenomena like tax exemption and the taxation system are analysed by the author by means of various methods (regression analysis, entropy, etc.), with stress on the basic theoretical premises of this or that method. The author's highly interesting historical generalisations on the development of social relations in late Byzantium deserve attention.

Mathematical statistical methods are also used in a number of other articles. Thus, correlation analysis is used by N. Selunskaya in her study of register of landed estates in Russia in the late 19th and early 20th centuries, mortgaged at the Gentry Land Bank. The author remarks on the limitations of the accepted method used to determine the share of the capitalist and the labour service systems on the landed estates, a method based in effect on the analysis of one feature, the use of farmland. The author proposes a structural-factor analysis of the main features of the landed estates as reflected in the registers. This analysis is carried out by bringing out the correlational links between a number of factors (for

instance, between net income and expenditure, between net income and the value of live and dead stock, etc.). It is true that one is not always quite sure which correlation coefficient the author has selected in each case and for what reason. (Unfortunately, not all the articles in the collection contain a preliminary assessment of the nature of this or that relationship, which is precisely what should determine the selection of the type of coefficient.) The experimental analysis of landed-estate registers in Moscow Gubernia, nevertheless, shows that the proposed method is a promising one. Correlation analysis indicates, in particular, that these estates clearly reveal a prevalence of stock-breeding which has not, however, reached the scale of commercial operations.

Another interesting application for correlation analysis has been proposed by L. Bragina, who has set herself the task of applying quantitative methods to the study of a narrative source, a philosophical treatise by the 15th-century Italian humanist C. Landino. The task is fulfilled by compiling a thesaurus of philosophical-ethical terms, identifying the leading group of synonyms and by means of correlation analysis establishing the interconnection of so called central terms (*nobilitas*, *virtus*, etc.) with the other terms relating to the same group. As a result, Bragina obtains a full-scale concept of the central term "*nobilitas*", of which the main components are "virtue", "creativity", "origin", "wisdom", "knowledge", "society", "the state", and so on. The author believes that the quantitative characteristics so obtained are fully in accord with the results of analysis of the text of the treatise for meaning.

Many authors set themselves the task of formalisation and statistical processing of material, with the most diverse phenomena being formalised. Thus, the article by B. Mironov contains a formalisation of answers to a poll carried out by the Senate in 1767

to determine the causes of growing grain prices. The author makes some important observations helping to clarify the real causes of such growth. Of course, formalisation, like any type of generalisation, drops many concrete details, specific features, and so on, but it also opens up the possibility for statistical processing of a vast array of ethnographic objects. The collection contains information about the very beginnings of this important and painstaking work.

A good example of the interesting prospect in research into the source material on the basis of minimum formalisation is provided in an article by D. Deopik, who has decided to study the chronology and the spread of Buddhism in Burma on the strength of the building dates of temples. He has made a study of the building chronology as an aggregation. He has compiled a consolidated table establishing the appearance of temples by centuries (from the 6th century B. C. to the 19th century, inclusive), within the framework of the various regions of the country selected by the author.

The data of his table have been expressed in the form of graphs with the periods and the number of temples as coordinates. The author has identified three separate chronological periods, and relying on the nature of the graph for the period of the most realistic and most precisely dated construction of the temples, the author assesses (hypothetically, however) the degree of reality of the graphs for the two earlier periods.

Thus, the simplest formalisation helps to re-establish the history of early Buddhism in Burma.

The collection also contains articles by archaeologists. D. Deopik, A. Uzyanov, and M. Stiglits have carried out a statistical analysis of ornamental ceramics from the settlement of Koban in Northern Ossetia dating to the 10th-8th centuries B. C. By dividing the material produced by the spade into 10 conventional chronological periods and assessing representative samplings, the authors have classified the data on ornaments, bringing out the interconnections between the various types of ornaments and the types of vessels, thereby establishing the basic regularities in the evolution of ornaments.

The final section of the collection contains historiographical articles and reviews. Much interest attaches to a review by V. Yakubsky on the use of quantitative methods in the study of agrarian history in Poland during the serf period. The author traces in Polish historiography the use of quantitative methods, noting the importance of general writings by W. Kula, Y. Topolski, A. Wyczański and others. V. Yakubsky also draws attention to the difficulties arising in the study of sources for the use of regression and correlation analyses in studying material dating to the 16th and 17th centuries. Thus, he points out the difficulties in constructing dynamic series, determining the nature of the trend, etc.

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Б. РЮРИКОВ. *Реальный гуманизм. Статьи.* М., изд-во «Советский писатель», 1972, 719 стр.

B. RYURIKOV, *Genuine Humanism. A Collection of Articles.* Moscow, Sovetsky Pisatel (Soviet Writer) Publishers, 1972, 719 pp.

A collection of selected writings by Boris Ryurikov, a well-known literary critic and public figure, has just been published. Compiled by his son Yuri Ryurikov, it contains a number of articles written in the forties, fifties and sixties, and forms part of the author's literary heritage.

For almost fifty years, B. Ryurikov made a tangible contribution to Soviet literature as critic and publicist, editor and organiser of the literary forces. Thus, his activities embraced almost the entire period of its existence; he took part in all the ideological struggles that marked its development. In 1965, in an article on a collection of Alexander Fadeyev's reminiscences (*A Book about Our Comrade*) B. Ryurikov wrote that people sometimes speak with insufficient firmness about the ideological class struggle in which our Soviet socialist literature developed and advanced. Fadeyev was a figure of ideological integrity, Ryurikov continued, not because he was well grounded in Marxism—there were others no less well versed in this field—but because his principles were marked by a militant stand, were a guideline which he followed throughout his life.

This statement provides an excellent explanation of the activities and the nature of B. Ryurikov himself. He lived a full life, even if one of difficulty, hard work and struggle. He never sought after an easy life, often quoting Lenin's words that revolutionary periods are the most "normal" course of life.

A perusal of newspapers and journals of past years will show that Ryurikov's pronouncements were not always accepted as indisputable. They sometimes evoked disagreement, objections and even disputes, as is always the case with opinions that are clear-cut, and expressed in sharp and uncompromising terms. Not everything he wrote has maintained its significance, some of the articles in the collection under review containing assertions which have not stood the test of time and appraisals that have not been proved true. It is characteristic, however, that if such articles are considered in the ideological context of the time they were written in, it will be seen that B. Ryurikov was always right in the main things, and invariably defended a trend that proved viable and in

keeping with the march of time. This testifies to the impact of B. Ryurikov's writings, which is why this collection of his articles, each of which was born of the needs of the times and reflects the topical interest of the time it was written in, contains conclusions which have preserved all their telling force.

The collection begins with writings devoted to the heritage of the classics of Marxism. This is how it should be, for B. Ryurikov made an important contribution to the study of the aesthetic views of the founders of scientific communism. He had a profound knowledge and was a skilful interpreter of the views of Karl Marx and Frederick Engels in the realm of culture and arts. He took part in compiling the collection *V. I. Lenin on Literature and Arts*, and was the author of the well-known preface to that book.

Many articles on this subject included in the book under review, were written for definite occasions: the publication of a two-volume *Karl Marx and Frederick Engels on Art*; two volumes of letters that conclude the fourth edition of the works of V. I. Lenin; Volume 36 of the *Lenin Miscellany*, and so on. Though these were reviews, reactions to new publications, they were outstanding works in this field, revealing a profound knowledge, and marked by a pungent polemic with the falsifiers of Marxism; he stood up for the force and viability of Marxism with passionate conviction and in the Party spirit. It was with great consistency that B. Ryurikov disproved the opinion, which goes back to the leaders of the Second International; that the aesthetic views of Marx and Engels were "fragmentary" and "incomplete". B. Ryurikov showed that the fundamentals of a scientific understanding of the development of literature and art in connection with the development of society were laid down by none other than Karl Marx and Frederick Engels. Their profound and materialist explanation of the

most complex and refined phenomena of spiritual culture put an end to the predominance of idealism in aesthetics.

In just the same forceful and telling way, the writings of B. Ryurikov showed the continuity between Lenin's views on art and those of Karl Marx and Frederick Engels. He came out consistently against all and any attempts to drive any kind of wedge between the propositions they advanced.

B. Ryurikov devoted special attention to the defence of Party principles, since it is this proposition in Marxist-Leninist aesthetics that gives rise to the enemy's major attacks, and often even to a lack of understanding among friends; it is the most frequent object of falsification. Ryurikov showed that Lenin's principle of the Party spirit was an historical necessity, and explained that principle's place in the system of the Marxist views of art, and its significance to artistic creativity. It was with the same consistency that B. Ryurikov revealed the objective roots of the interest the classics of Marxism-Leninism had in realism in art.

He came out passionately against the vulgar-sociological approach to the literary process and against the claims of its supporters to be orthodox Marxists. On the basis of the views held by the classics of Marxism, B. Ryurikov consistently developed the idea of the genuinely scientific sociology of art. To liberal-ideological vagueness of principles, he wrote, Marxism contraposes the demand for a clearcut definition of the social significance of any trend and any work of art. It is only this scientific approach that can ensure a fruitful and concretely historical study of the phenomena of spiritual life.

A special place in B. Ryurikov's literary heritage belongs to his research into the history of Russian revolutionary-democratic thinking, first and foremost, that of Chernyshevsky, to whom he dedicated what was perhaps his most refined and inspired writ-

tings. Chernyshevsky, whose road in life, as B. Ryurikov put it, was full of rare internal drama and, at the same time, was as unswerving as the flight of an arrow, attracted his interest, not only by his literary and political activities, but also as a character deserving the closest study. Chernyshevsky's moral make-up had a strong attraction for B. Ryurikov.

A closer look at B. Ryurikov's writings and his activities distinctly reveals two interlinked sources of his impact. One was the tradition of the Marxist press, with its class keen-sightedness, and its ability to see the phenomena of life and art in their broad historical perspective and to discern the main trends, without simplifying the complexity of the phenomena of life. The second stemmed from the traditions of progressive Russian social thought, which always served the people's welfare and the interests of literature and truth. The surroundings in which B. Ryurikov grew up embodied the historical links and continuity of these traditions. B. Ryurikov was born in Switzerland in the family of a Russian political emigrant. Towards the end of his life, he revealed a lively interest in those days and planned to visit Geneva to see the house where he was born, which stands quite close to the house Lenin lived in at the time. He spent his childhood and adolescence in Nizhny-Novgorod, the city of Gorky today, and absorbed the rich cultural and revolutionary traditions of this part of the country. His visit to his native town in 1968, where B. Ryurikov delivered a passionate and thoughtful report at the Gorky jubilee celebrations, was a landmark in his life.

B. Ryurikov's talent was a versatile one. As a scholar, he left an impress on the elaboration of Marxist aesthetics and the theory of socialist realism; as an historian of literature, he did much work on the theoretical problems of the classical heritage and the study of the classics of Russian literature, including the writings of

Lev Tolstoy and Fyodor Dostoyevsky. What perhaps stood closest to his heart was the restless role of a critic, one who played a direct part in the literary process. He did a great deal of writing on Soviet literature, the collection under review containing major articles on Alexander Fadeyev's *Young Guard*, the writings of Konstantin Fedin, and books by Koptayeva, Nekrasov, Berezhko, Granin, Ketlinkskaya and Kochin. He could find even a short story worthy of a special article, as was the case with Emmanuel Kazakevich's *A Father's Visit to His Son*, which had just been published in the *Znamya* magazine. In it, B. Ryurikov discerned severe and realistic truthfulness and moral stature.

The reader is sure to notice that B. Ryurikov's book says a great deal about the critic's calling. He reminds the reader that Lenin ascribed a tremendous role to literary criticism as a weapon in the struggle for the Party spirit in literature, and for an art that educates and raises up the masses. Quoting Lenin's words that "a journal without a trend is an absurdity, a ridiculous, scandalous and harmful thing" (V. I. Lenin, *Collected Works*, Moscow, Vol. 34, p. 434) Ryurikov spoke of the important tasks confronting the critics in the struggle for the ideological character of Soviet literature and for a rich art of socialist realism. As he saw it, the genuine critic expresses the interests of the reader; he represents public opinion, and he is that ideal reader in whom a book gives rise to the greatest number of ideas.

Nothing was so alien to B. Ryurikov as gloomy and unfriendly criticism, the replacement of the Party spirit by drill-ground strictures, or regarding the writer as an eternal debtor. It is sometimes thought, B. Ryurikov wrote in an article entitled *The Fundamental Problems of Soviet Literary Criticism*, which was based on his report to the Second Congress of Soviet Writers, that the value of artistic criteria is expressed in an

ability to see and discover shortcomings in a piece of writing. That is wrong. The value of criteria is expressed, first and foremost, in an ability to see the good points in a work. Therein lies the most difficult task of literary criticism.

Noteworthy in the collection under review is the section entitled *On Two Fronts*, which contains the articles written by the author in the last years of his life in the conditions of an aggravation of the ideological struggle against the new wave of anti-communism and militant anti-Sovietism in the world. As befits a Soviet critic, B. Ryurikov was in the forefront of the battle, displaying a keen understanding of the danger presented by the aesthetic "innovations" of Ernest Fischer and Roger Garaudy, whose initiation of revised Marxist aesthetics is full of far-reaching ideological and political significance.

B. Ryurikov showed that Peking leadership's Leftist vulgarisations actually cover up treachery to the revolutionary movement and a rabid nationalism; he recalled the struggle waged by Karl Marx against the "barracks communism" [K. Marx and F. Engels, *Works*, Moscow, 1961, Vol. 18, p. 414 (in Russian)]. Our argument with the Peking theoreticians is not on particular questions, wrote B. Ryurikov, we are defending the *fundamental* interests of civilisation, the philosophy of socialist culture and the latter's *historical future*. Such articles as "Socialist Realism and Those Who Would Overthrow It", "Genuine Humanism", "The Banner They Would Raise", "The Activity of Art", and "Man: Solitude and Liberty" (B. Ryurikov's last major article) are among the finest critical writings in Soviet criticism of those years; they made a significant contribution to the acute international discussions on the fundamental questions of art and the ideological struggle of today. It is to be regretted that these are not always sufficiently known abroad.

B. Ryurikov wrote a good deal during the last years of his life on questions of socialist humanism. He realised the significance of the relevant problems and the far from abstract nature of the discussions on this subject in the world today, in which the significance of all kinds of anti-communist "smoke-screens" has become so enhanced. The acute and intense ideological struggle around the problem of personality and the latter's attitude towards society is no collision of abstract notions an argument of the most important questions of life, which affect every man. That is why B. Ryurikov so insistently spoke of the chasm separating the aims of communism, which are of concern to all mankind, the principle of socialist society: "everything for the sake of man", on the one hand, and, on the other, the erosion of clear-cut class criteria and the far-from-new striving to establish a kind of "overall humanism", in which all can be equally involved, "from the businessman to the ricksha", an approach that should "complement" Marxism. Marx himself, B. Ryurikov wrote, ridiculed attempts made by "genuine socialists" to regard humanism as something superior to communism and socialism. It is very important, he wrote, that Soviet literary scholars should achieve full clarity in these questions, so that no vagueness should be able to weaken our struggle against enemy views.

An interest in these problems was deeply rooted in B. Ryurikov's writings. Whatever aspect of the com-

munist doctrine he referred to, he always emphasised that it was aimed at liberating mankind and making possible the full development of man's potentialities. It is frequently mentioned in this book that Marx called communism genuine humanism, a compressed formula that is full of tremendous significance, as B. Ryurikov emphasised. To B. Ryurikov the doctrine of the radiant communist future was not a piece of abstract book wisdom, but something of a living and actual significance.

To me, and to many others who knew him personally, his untimely death seems an unwarranted absurdity. He counted on many more years of life and work and said—not merely in jest—that he wanted to live at least as long as Bernard Shaw did. His entire appearance created an impression of power, both spiritual and physical, right up to his last days and even when he was incurably ill. Things did not work out as he hoped and his extensive plans were not destined to be carried out, but even what he was able to complete is impressive. Anyone who reads his books will see their ideological wealth and feel the power of his thinking, his generosity of soul, and the attractiveness of a whole and forceful personality. He was among those who will not be forgotten and to whom the passing years can only give a greater stature.

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SCIENTIFIC LIFE

125 YEARS OF THE COMMUNIST MANIFESTO

In March 1973 Moscow was the venue of a joint conference of the Institute of Marxism-Leninism, the Academy of Social Sciences, the Higher Party School of the CC CPSU, and the humanities institutes of the USSR Academy of Sciences devoted to the 125th anniversary of the publication of the *Manifesto of the Communist Party*.

Opening the plenary meeting, Academician P. Fedoseyev, Vice-President of the USSR Academy of Sciences, Director of the Institute of Marxism-Leninism, said: The *Manifesto* is an eternal monument to the ideological cooperation and unity of views of Marx and Engels, the two great teachers of communism, it is the programme document of the first international communist organisation. In it is given a masterly exposition of the theory and programme of the revolutionary working-class movement."

The basic theoretical propositions of the *Manifesto*, comprehensively developed in the subsequent works of Marx and Engels, retain their significance to this day. The entire course of history has proved the correctness of the philosophical, economic and sociological principles of the Marxist doctrine expounded in the *Manifesto*. The historical experience of the working-class movement graphically confirms that revolutionary theory can serve as a guide to action in new historical conditions only when it develops on the foundation of the basic principles of Marxism. That was how Marxism was further developed by the great Lenin, that is how Marxism-Leninism is being developed by the Communist Party of the Soviet

Union and by the fraternal communist and workers' parties.

The ideas of the *Manifesto* have become the banner of progressives throughout the world. The contemporary international working-class and communist movements, the activity of all truly revolutionary forces are based on the strategic and tactical principles of the *Manifesto*.

The founders of Marxism discovered in the person of the working class the most advanced revolutionary force and scientifically analysed the objective laws of its struggle and victory. Following the behests of the *Manifesto* Communists champion the immediate interests of the working class and, at the same time, the ultimate goal of their struggle—the victory of socialism and communism. In conformity with these behests Communists support the revolutionary liberation movements, seek unity of all democratic forces.

In his introductory speech Academician B. Ponomaryov, Alternate Member of the Politburo, CC CPSU, Secretary of the CC CPSU, said: The great ideas expressed for the first time in the *Manifesto* have become an organic part of our world outlook, they steadfastly serve the struggle for socialism, national freedom, democracy and peace. All the glorious dates of our revolutionary history are linked with the triumph of the ideas first expressed in the *Communist Manifesto*. We all still vividly remember the 50th anniversary of the Great October Socialist Revolution, the very revolution whose inevitability was first proclaimed in the *Communist Manifesto*. The whole world

marked the centenary of the birth of V. I. Lenin with whose name and great exploit are associated the signal achievement of the working class, of the working masses in putting into effect the ideas of the *Communist Manifesto*.

The peoples of the Soviet Union, together with their foreign friends, recently celebrated the 50th anniversary of the formation of the USSR. It was the occasion for summarising the results of the establishment and consolidation of the multinational socialist state which, too, took shape on the basis of the ideas spelt out in the *Manifesto*, on the basis of the consistent application by the CPSU of the principles of proletarian internationalism.

All Soviet people are by their labour making a useful contribution to accomplishing the tasks set by the 24th Congress of the CPSU. Fulfilment of the grand programme advanced by the Congress will become an important gain on the way to communism—to the society the contours of which were outlined in the *Communist Manifesto*.

The *Manifesto* is the first integral exposition of the theory of scientific communism and the first comprehensive programme of the revolutionary party of the working class. It charts the international and revolutionary principles of the strategy and tactics of the Communists, is a brilliant model of forcible criticism of anti-communist and pseudo-socialist theories. Today real socialism is the main, the most complete embodiment of the *Manifesto's* programme. The establishment and development of socialism is the most weighty and practical proof of the correctness of the Marxist-Leninist doctrine. The experience of socialism, taken in its most essential features, has enriched the theory of the international working-class movement.

The 24th Congress of the CPSU made an outstanding contribution to the theory and practice of communist construction. Proceeding from the

specific features of the present stage of the Soviet Union's development the Congress stressed the need organically to fuse the advantages of socialism with the achievements of the scientific and technological revolution. The Party consistently combines concern to raise the material well-being of the people with concern to multiply spiritual and cultural values and to affirm the Marxist-Leninist ideology and a high standard of morality. This graphically reveals the humanistic nature of the socialist system. Communist construction in the Soviet Union is an integral part of the world revolutionary process. The tangible successes of the socialist countries are an important factor enhancing the weight and influence of the international working class. The political role of the working class of the capitalist countries is growing, the degree of its organisation and class consciousness is rising, it is augmenting its revolutionary experience, is exerting increasing influence on other social strata, on its allies in the anti-monopoly struggle. The young working class of the newly-free countries is coming to the fore as an active force in the battles for social and national progress. Together with the growth of the working class the social base of the communist movement is expanding: 89 communist parties are active in the world today.

In the complex period of the mid-20th century, a period which is, at the same time, a responsible one for mankind, of all the political forces of today only the Communists proved capable of working out a really revolutionary and really realistic programme of anti-imperialist struggle, of struggle for peace, democracy, national liberation and socialism. This programme is the political platform of the 1969 International Meeting of Communist and Workers' Parties. The CPSU, in cooperation with the fraternal parties, is active in all the directions of the anti-imperialist struggle defined by the 1969 Meeting.

The CPSU is developing its activity in this sphere in pursuance of fulfilment of the decisions of the 24th CPSU Congress, of its Peace Programme advanced in the report by Leonid Brezhnev, General Secretary of the CC CPSU. The Peace Programme meets the vital interests of mankind and at the same time the class interests of the proletariat and of the communist movement; it meets the interests of proletarian internationalism. The historic success of heroic Vietnam, the relaxation of tension in Europe, the fact that the principle of peaceful coexistence has become a real factor in world politics—towards all this the Soviet Union has made its major contribution.

Reports were delivered at the plenary meeting by V. Afanasyev, Corresponding Member of the USSR Academy of Sciences, and by Professor A. Sobolev.

V. Afanasyev dwelt on the theoretical problems of scientific communism elaborated in the *Manifesto*. An analysis of the objective laws of social development, the dialectics of capitalism, the irreconcilable contradictions inherent in it, he said, led Marx and Engels to the brilliant discovery of the doctrine of socialist revolution. The reporter described the theoretical development of Marxism, the theory of scientific communism in the works of Lenin and in the theoretical and practical activity of the Communist Party of the Soviet Union and of the fraternal communist and workers' parties. A significant contribution made by the CPSU to the theory of scientific communism, he noted, was the elaboration by it of the theoretical propositions regarding a developed socialist society and their implementation.

The *Manifesto* and the Communist League, the first international communist organisation, said A. Sobolev, signified the theoretical substantiation and organisational shaping of a fundamentally new political force—the communist movement which acted as the advanced,

organised and conscious vanguard of the working class. Marx's and Engels' greatest achievement is that they showed the world-historic mission of the proletariat which will put an end to the capitalist system and will build a new, communist society. Greater militancy of the working class depends in large measure on the unity of its actions; the speaker noted the growth in the consciousness of the proletariat and its higher degree of organisation in the present-day conditions, dwelt on problems of the unification of all working people around it, of the leading role of the proletariat in the anti-imperialist struggle.

The plenary meeting was followed by section meetings. The joint section meeting of the Institute of Marxism-Leninism and the Academy of Social Sciences discussed the development in Marxist-Leninist theory of the *Manifesto's* propositions on the world-historic role of the proletariat in creating a communist society, its hegemony in the revolutionary movement, the Communist Party as the leader and organiser of the working class. New researches into the history of Marxism and the revolutionary movement, it was noted by scientists in the discussion, make it possible to gain a deeper understanding of the theoretical content and historic significance of the *Communist Manifesto*.

Academician B. Kedrov devoted his report to the role played by the *Manifesto* in the development of the Marxist doctrine. He showed that the inner logic of the evolution of Marxism led from the *Manifesto*—where all aspects of this doctrine are systematised in their interrelation—to the elaboration of the most important individual aspects of Marxism and then again to a systematic exposition of the doctrine as a whole, but now on the basis of a generalisation of what the elaboration of its individual aspects has yielded. This dialectical approach was preserved throughout the further advance of Marxist thought. In our time the Marxist

dialectical method, applied for the first time in the *Manifesto*, is of tremendous significance for studying such complex and many-faceted processes as the scientific and technological revolution, science as a social instrument, and other processes. The more comprehensively these processes are studied by contemporary Marxists, the more clearly is seen the *Communist Manifesto's* place in the evolution of the Marxist doctrine up to our day.

The section meeting in the Higher Party School was devoted to the *Manifesto's* basic ideas about the historic role of the proletariat, its political party, to problems of working-class united action and the principles of proletarian internationalism. All these questions were closely tied up with the contemporary development, with the pressing tasks of the international communist and class movement. The *Manifesto* also today serves the working class and Communists all over the world as a theoretical weapon in their struggle against bourgeois ideology and anti-communism, opportunism and revisionism, dogmatism and sectarianism.

Professor S. Popov noted that the methodology of criticism of different forms of unscientific socialism, elaborated by Marx and Engels and brilliantly applied by them in the *Manifesto*, was of tremendous, enduring value and defined the present varieties of non-Marxian socialism. The ideas of pre-Marxian socialism, modified and adapted to the new historical conditions, continue to live in the theoretical constructions of social-reformism, Right and "Left" opportunism. Anarchism and anarcho-syndicalism, petty-bourgeois anti-Marxist views which border on Narodnik socialism have not left the historical scene. The ideology of the monopoly bourgeoisie feeds on certain trends of the scientific and technological revolution, assuming in different kinds of convergence theories a pseudo-socialist colouring. The

methodology of criticism of non-Marxian socialism applied in the *Manifesto*, enriched and given concrete expression in the subsequent development of Marxism, therefore remains a sharp weapon of the international communist movement in the present ideological struggle.

The theory of the class struggle, the place and role of the proletariat in capitalist society, the principles of proletarian internationalism in the light of the *Manifesto's* ideas, unity of the world communist and working-class movement were the subjects discussed by the joint section meeting of the Institute of the International Working-Class Movement and the Scientific Council, USSR Academy of Sciences, concerned with problems related to the history of the international working-class and national-liberation movements.

Professor N. Kovalsky noted that the question of the class struggle holds a paramount place in the *Manifesto*. Marx and Engels were the first to deduce that the struggle of classes inevitably leads to the revolutionary reorganisation of society. The reporter subjected to well-reasoned criticism the theories of bourgeois ideologists about the class struggle "abating", "disappearing", about the class struggle giving way to generational conflicts, to racial and national contradictions, to contradictions between developed and developing countries, etc. The aggravation of class contradictions in the capitalist countries, the growth of the strike movement in them, the increased influence of the communist parties—all this conclusively speaks of the mounting class struggle, of the ideological bankruptcy of anti-communism.

The *Manifesto of the Communist Party*, like no other document, reflects the past, present and future revolutionary process under way throughout the world.

L. Vinogradov

MAN AND SCIENTIFIC AND TECHNOLOGICAL PROGRESS

An all-Union scientific conference "Man and Scientific and Technological Progress" was held in Moscow in March 1973 under the auspices of the USSR Philosophical Society jointly with the USSR Ministry of Higher and Specialised Secondary Education, the USSR *Znaniye* (Knowledge) Society and the Institute of Philosophy, USSR Academy of Sciences.

The conference was attended by about 500 scientists in different spheres: philosophers, natural scientists, economists, sociologists, medical men and jurists representing all the Union Republics. More than 150 reports were made in three days at plenary sessions and panel meetings.

In his introductory speech Academician F. Konstantinov, President of the USSR Philosophical Society, emphasised the importance of the problems related to the scientific and technological revolution which is exerting an ever greater impact on the economic, social, political and spiritual life of contemporary society. The participation of specialists who study different aspects of the interaction of man, science and technology, meets the essence and nature of the Marxist-Leninist philosophy which firmly follows Lenin's behest—to consolidate the alliance of Marxist philosophers with materialist natural scientists, with representatives of all the sciences.

Seven reports by noted Soviet scholars and also a speech by Academician T. Pavlov, Member of the Political Bureau of the Bulgarian Communist Party, honorary President of the Bulgarian Academy of Sciences, were heard at the plenary sessions.

One of the major philosophical issues of our time was analysed in detail by Academician F. Konstantinov in his paper "The Scientific and Technological Revolution and Problems of Ethical Progress". In our days, as he emphasised, voices from different sides sound the alarm about

the destruction of the ethical mainstays of Western civilisation, about a moral crisis. Academician Konstantinov noted that some Western scientists voiced anxiety over the destinies of the nations owing to the mounting contradictions between the growth of society's material potential and the generally observed degradation of moral values. He pointed out that the contemporary epoch was not only marked by a crisis of moral values of Western civilisation but also was an epoch of the development of socialism, advance of national-liberation movement of the masses, of the anti-imperialist struggle with which a new stage in the progressive development of the moral consciousness of the peoples was linked. In conclusion he emphasised that only the social revolution was capable of resolving the present contradictions in the West between the scientific and technological revolution and moral progress.

Academician N. Dubinin in his paper "The Social and Genetic Programme of Man in the Light of the Tasks of the Scientific and Technological Revolution" presented a detailed analysis of the relationship between the social and biological sides of man in conditions of scientific and technological progress. In his opinion, one of the major requirements for the further deepening of our knowledge of man is the study of the genetic programme of man's development in close connection with the programme of his social heredity. He subjected to detailed criticism the views of Western scientists who exaggerate the importance of genetic factors for the further development of man and all mankind.

Academician N. Anokhin devoted considerable place in his paper, "Philosophical Aspects of the Natural and Artificial Intellect", to examining the specific features of self-controlled systems and the decisive part played by the goal in the process

of this self-control and also to an analysis of the theory of priority reflection of reality elaborated by him. He also emphasised the big role which the idea of the close union of philosophy and natural science had played, and was playing, in the activity of the present-day researcher.

The types of the processes of the theoretical synthesis of contemporary scientific knowledge was examined by Academician B. Kedrov in his paper "On the Synthesis of the Sciences". This problem, as he noted, is inseparably linked with the classification of the sciences but is much broader compared with it because it covers not only interdisciplinary relations and the reciprocal ties of different sciences but also intradisciplinary processes aimed at theoretically linking together scattered empirical material. The paper analysed three types of synthetic processes in science: intradisciplinary, internal interdisciplinary and external synthesis.

The paper by Academician M. Mitin, "The Problem of Humanising Technology and Social Progress", singled out three main trends in Western philosophy, sufficiently distinct at present, each trying in its own way to furnish a solution to the problem of "humanising" technology: the existentialist, psychologico-anthropological and neotechnocratic. He analysed in detail the major shortcomings of each of them and paid main attention to expounding the Marxist view of humanising technology. Academician Mitin examined the problem of eliminating the forms of alienation which historically emerged under capitalism, a task which can be accomplished only after the socialist revolution, when new social relations are established ("humanisation of social reality"), when the designation and inner content of technology itself is changed ("humanisation of technology") and when a natural environment facilitating to the utmost the development of man and mankind is created.

I. Frolov, D. Sc. (Philos.), who presented a paper "Contemporary

Science and Humanism", underlined that the socio-philosophical and ethical problems of science acquired great significance in present-day conditions. The organic fusion of science and humanism is vitally necessary. In accomplishing it, humanised science includes man in its initial principles and ultimate results, while humanism becomes scientific, which presupposes the study of man and his development in close connection with social practice. This makes clear the falsity of the dilemma of scientism and anthropologism and demonstrates the need for a single science of man, of which already Marx spoke in his time. Such an approach reveals the fruitfulness of the organic fusion of research and value premises, the subordination of scientific cognition to humanist ideals.

"The Objective Tendency of Consolidating the Union of Philosophy and Natural Science", the paper by V. Gott, D. Sc. (Philos.), outlined the path traversed by science, and demonstrated the existence at all its stages of an objective tendency for the interconnection and interaction of materialist philosophy and natural science. He pointed out that the creation of dialectical materialist philosophy led to a new stage in the development of this objective tendency, most fully embodied in the idea of the union of philosophy and natural science.

After the plenary session the work of the conference proceeded in the panels. In the panel "Marxist-Leninist Philosophy and Scientific and Technological Progress" attention was focussed on three problems: 1) the destiny of philosophy in our age, the nature of the influence exerted on its function of moulding a world view by the scientific and technological revolution; 2) the philosophico-sociological analysis of major aspects of scientific and technological progress; 3) distinctive features of the present stage in the interaction of nature and society.

The swift spread of the scientific and technological revolution led in

the West to a more intensive search for a philosophical world-view orientation. This search once again graphically demonstrated the ineradicable ambivalence of bourgeois consciousness. On the one hand, it is a powerful ideological trend—technological determinism, which sees in technology the decisive factor of our age. On the other, it is scientism closely connected with it, which converts the special sciences that are only one of the means of expressing the vital link of man with reality into a universal means for achieving a rational and, at the same time, "humanised" social system. The other orientation, proposed by existentialism, proceeds from the need radically to change the attitude of the contemporary man to the world, to bring out an ability to think which is basically different from the scientific one. The consequent value approach is put up against the scientific one, with the result that truth as the aim of scientific study is declared to be unachievable and the solution of social problems in humanising modern civilisation is perceived only along the lines of renouncing all the achievements of science and technology and all attempts to analyse society scientifically and of constructing futile emotive value theories.

All the speakers emphasised that only the Marxist philosophy eliminates the counterposing of science and technology to man, conclusively showing their subordination to human aims as such both in theory and practice.

Considerable attention at this panel was given to analysing the distinctions of the scientific and technological revolution, which ultimately signifies a new stage of man's power over the natural forces utilised above all in technological processes.

Speeches dealing with modern problems of the interaction of society and nature underlined the need for exerting serious effort in elaborating recommendations both by the social and natural sciences for preventing an ecological crisis which might un-

dermine the very mainstays of society's existence. Application of the latest achievements of special sciences, above all cybernetics and the theory of information, must play an important part in solving these questions.

Conscious control of the entire "biotechnosphere" as a sphere of man's habitation, regulated and organised according to the laws of nature, will be characteristic of material production in the communist formation.

The panel "Philosophy and Contemporary Science" discussed the following problems: 1) integration tendencies in the development of contemporary scientific knowledge; 2) the methodological role of Marxist philosophy and a number of its major categories and principles in studying present-day problems of the natural sciences; 3) scientific and technological progress and the present state of psychology.

Integration processes in the development of scientific knowledge are beginning to play an ever greater role, determining the accelerated convergence and fusion of the sciences, and the emergence, on this basis, of a new type of scientific studies and trends.

The integration of knowledge eventually depends on the productive and technical activity of man and, therefore, the technical sciences play a special part in integration, acting as the connecting link in which the fusion of the natural sciences and the humanities takes place.

In examining the methodological role of Marxist philosophy and a number of its major categories for the modern sciences, it was noted that the dialectical materialist theory is directly linked with the logic of science, a discipline which studies the distinctions of the cognitive process for some or other groups of kindred sciences. In this context emphasis was laid on the importance of further analysing the principle of determinism which has been quite actively discussed in philosophical literature in recent years. It was pointed

out that the concepts of determinism and causality are not identical; moreover, the former is a broader concept than the latter: the difference follows along the line of singling out causal and non-causal determination. The consistent application of the determinism principle makes it possible to penetrate deeper into many most diverse problems such as the concept of time, expediency, morality. A number of communications analysed the structure of scientific theory, the specific ways idealised objects are introduced into it, the criteria of simplicity, truth and precision.

The present state and important tasks of psychology in the light of the achievements of scientific and technological progress were examined. It was emphasised that this progress had entailed a considerable expansion and enrichment of the subject matter of this science, the methods of its research and conceptual apparatus. Ever more problems are brought to light which require comprehensive study and ultimately must lead to the elaboration of a harmonious theory of man as the active subject in the processes of labour, cognition and communication. The participants in the panel fruitfully discussed the nature of the ideal and the mental, the interaction of the external and the internal determination of the mental, the object of study of psychology, logic and dialectics which investigate different sides of man's mental activity.

The attitude of society and the individual to the scientific and technological progress was the problem taken up at the panel "Society and the Individual in the Epoch of the Scientific and Technological Revolution" as a major issue of the world-view of our time, around which a keen ideological struggle is being fought. Bourgeois ideologists are trying to impose their interpretation of society's historical progress in the spirit of technological determinism. In their opinion, the nature of social relations does not exert a substantial influence on the life of society, on

the new problems it engenders, which are fully deduced by them from technology, from the distinctions of the technical devices and systems employed in production.

Marxist philosophy, rejecting vulgar notions of the class nature of technology, at the same time holds that different social relations also inevitably lead to a different use of technology either in the interest of the working masses and all mankind or in the interest of the exploiting class. From this also follows the fundamental difference in the nature of the influence exerted by the development of technology on the position of the individual in society. In capitalist society the abyss between classes is constantly deepening and the moulding of the individual, his scientific and cultural potential are increasingly subordinated solely to the objective of gain and profit. The propertied classes deliberately try to lessen the activity of the people, to turn them, with the help of the mass media, into obedient tools of achieving goals and interests alien to them.

Quite the reverse, the building of communism necessarily demands an advance in the constructive activity of the masses, the education and the moulding of versatily developed individual. The scientific and technological revolution, as repeatedly noted, has steeply enhanced the interest in the problem of the individual. And this is not surprising because the achievements of the scientific and technological revolution very swiftly lead to a change in the content and nature of labour in material production, to its "intellectualisation", which in turn makes new demands on the individual, his creative capabilities, independence and moral traits.

A considerable place at the panel was taken up by problems of the correlation between the social and the biological in man. The participants noted that neither the biological basis of man's social being can be ignored nor the social reduced to the biological. It was pointed out in a

number of papers that the scientific and technological revolution makes it necessary to view in a new light the intricate interconnection of these components. It was stressed that to foresee and remove in good time some of the adverse consequences exerted by the contemporary development of science and technology on the biology of man, is one of the pressing problems of our time.

At the final session Academician F. Konstantinov noted that the conference was a success. It discussed important and urgent problems put to

the fore by society's entire development and demonstrated with utmost clarity the need for the deeper application of Lenin's idea—the union of philosophers and natural scientists, specialists in different spheres of knowledge—economists, jurists, historians, geographers, medical men and the large contingents of the technical intelligentsia and writers.

A. Shatalov,
Cand. Sc. (Philos.)
V. Shevchenko,
Cand. Sc. (Philos.)

MORALITY AND OUR AGE

A Soviet-Bulgarian symposium on the subject "The Scientific and Technological Revolution and Morality" was held in Moscow in March 1973.

The symposium began its proceedings with an examination of the problem of social and moral consequences of the scientific and technological revolution under developed socialism. This subject was dealt with in the opening speech by T. Stepanyan, Corresponding Member, USSR Academy of Sciences. He emphasised the fundamental differences between the consequences of the scientific and technological revolution under socialism and that under capitalism. Under capitalism the scientific and technological revolution is giving rise to unsolvable social and moral conflicts. Under socialism the nature of the consequences of this revolution are qualitatively new. However, the achievements of the scientific and technological revolution are not automatically linked with the advantages of socialism, without contradictions occurring. Although these are not antagonistic contradictions, the attention of the public is needed in order to solve them. For instance, contradictions may occur between the interests of individual collectives

and the interests of society, between individual and public interests.

Undivided attention was attracted by the paper by Academician T. Pavlov, member of the Political Bureau of the Bulgarian Communist Party. Headed "Against Axiological Concepts in Philosophy and Ethics", the paper was devoted to the Marxist scientific method in ethics and to a critique of the fruitless axiological concepts of Western philosophy.

M. Zhuravkov (USSR) read a paper in which he showed that under developed socialism the scientific and technological revolution required greater initiative and creativity in work, as well as an enhancement of the principles of collective effort, discipline, responsibility and a great sense of civic and labour duty.

V. Momov (Bulgaria) and Doctors of Philosophical Sciences S. Anisimov and A. Shishkin (both USSR) spoke of the link between science and humanism and of the moral responsibility of natural scientists. They analysed the moral aspects of the professional work of scientists during the scientific and technological revolution. It was noted that in natural science there were no special principles restricting the use

of scientific and technological achievements for anti-humane purposes. These principles have been elaborated by the social sciences, morals and ethics. Morals are therefore an effective form of social control over the work of scientists.

S. Angelov (Bulgaria) summed up the results of the first day of the symposium noting that the unparalleled progress in science and technology was making more acute the question of the potentialities and consequences of man's domination of nature, science and technology. A scientific solution to this question requires the promotion of man's science as a whole, and the integration of individual forms of scientific knowledge into a single science a synthetic science of man.

The papers dealing with the theoretical problems of morals in the scientific and technological revolution started a debate on the problem of the relationship between science and morals and between morals and culture. In their analyses of the dialectics of morals and science in the scientific and technological revolution, the speakers noted that Marxism saw both unity in the natural ties between science, morals and culture, and also the differences, and even the antitheses, between them. In order to solve this problem correctly, the modifications and interpenetration that science, morals and culture undergo during the scientific and technological revolution will have to be traced. One of the trends in their essential modifications is that science, morals and culture interlock and influence one another. For instance, in science increasing importance is being attached to the relationship between the object and the subject, the influence man exercises on this process and to the results of new scientific knowledge. On the other hand, under the influence of science, morals are acquiring an increasingly more solid scientific foundation, and increasingly more accurate concepts, and proofs. Under socialism science, morals and culture

are subordinated to the common aim of moulding man as a harmonious, creative, socially active individual with a scientific way of thinking, communist consciousness, morals and culture, an aesthetically developed taste and physical perfection.

The problem of the relationship between the scientific and technological revolution and moral progress was the subject of the debate on the second theme of the symposium. Social progress, V. Vychev (Bulgaria) noted, is characterised not only by scientific and technological achievements, but also by the elaboration of the standards and assessment of behaviour reflecting the social system's need and its opportunities to improve the relations between the individual and society. Socialism is the only social system that has created the objective and subjective conditions to bring to an end the disproportions between scientific, technological, social and production progress. The level of harmonious development of the individual is the criterion of their maximum conformity.

Furthermore, the participants in the symposium discussed the problem of moral education during the scientific and technological revolution. It was pointed out that the role and significance of moral education are enhanced by the scientific and technological revolution. People living in a socialist society not only have to be educated, but also have to have high moral standards. If such standards are not achieved, the individual's knowledge and professional training are of no use. The extent of a person's knowledge is not yet a guarantee of or the deciding factor in his overall, harmonious development. It was noted that the humanities frequently have to be considerably curtailed when the curricula of institutions of higher learning were augmented and revised. However, with regard to the overall cultural development of an individual, the lack of education in the humanities is a deficiency that cannot be compensated. It was stressed that particularly close

attention should be given to bringing the gap between the humanities and the natural sciences in education.

The speakers considered various aspects of moral education—labour, patriotic, internationalist, collectivist and so forth. M. Semov (Bulgaria) felt that, with the scientific and technological revolution, the specifics of labour education made it necessary not only to take account of material and moral incentives for work, but also of specific "technical" incentives, to take account of the interest of people, particularly young people, in technology. Under developed socialism technical incentives have proved to be extremely successful, because as distinct from capitalism with its intensification of labour and man's bondage to machinery, socialist production gradually lightened the conditions of labour. Moreover, under socialism concern is shown for man, and creative content of labour is accentuated by reducing physical, mechanical and unskilled labour. The conclusion drawn at the symposium was that in view of the scientific and technological revolution an integral, purposeful system of moral education should be considered. This accentuated the role and significance of Marxist-Leninist ethics as the basis of moral education in a socialist society.

The symposium ended with the presentation of papers criticising certain bourgeois concepts of the moral consequences of the scientific and technological revolution. These papers analysed and criticised the morals of the future as depicted in the technocratic theory of J. Fourastié, the scientific concepts about the influence of the scientific and technological revolution on morals, and many widespread Western theories

about the relationship between the scientific and technological revolution and morality.

It was noted that Fourastié, for instance, made a fetish of the achievements of the scientific and technological revolution. Various scientific theories claiming that the natural sciences play a special role in the settlement of all global problems, including the moulding of a new type of individual with a new manner of behaviour, likewise made a fetish of science and technology in bourgeois society. In the social context theories of this kind represent an attempt to deprive science of its ideological, humanitarian foundations, a renunciation of the system of values that has been evolved during the struggle of advanced social forces for human progress. It has been shown that the present-day attempts to revive naturalistic theories, which claim that man's nature and morals are immutable, are similarly untenable. The theories of H. Marcuse and other anti-Marxists, who do not recognise the fundamental distinctions between the development of the scientific and technological revolution under capitalism and socialism, are frankly anti-communist. It was stressed that criticism of all kinds of present-day bourgeois philosophy and ethics was a pressing task in the contemporary ideological struggle.

Summing up the results of the symposium, Academician F. Konstantinov (USSR) and other participants noted the scientific and practical contribution it had made to the further elaboration of the problems that were discussed.

L. Konovalova,
Cand. Sc. (Philos.)

IMPERIALISM AND THE DEVELOPING COUNTRIES

An all-Union scientific conference "Imperialism and the Developing Countries. Forms and Methods of Counteracting Neocolonialist Influences" was held in Leningrad, November 1972. It was attended by over 200 scholars from more than 50 institutes of the USSR Academy of Sciences and higher educational establishments of the Soviet Union, as well as by scholars from research centres of Bulgaria, Hungary, the GDR, Poland, Rumania and Czechoslovakia.

The Third World policy of the Western powers, said V. Solodovnikov, Corresponding Member of the USSR Academy of Sciences, in his opening address, is aimed at maintaining and extending the imperialist exploitation of the young states, at preventing them from achieving economic independence; it is aimed, in particular, at preventing the nationalisation of foreign property and the formation of a social sector, and the transition, in the final analysis, to non-capitalist development and cooperation with the socialist countries.

Neocolonialism, noted Solodovnikov, is before all else a struggle for the survival of capitalism, a struggle against the spread of socialism, against its reserves and allies in the developing countries. The imperialists seek to turn the young states into an integral part of the world capitalist economy.

The neocolonialists, A. Mileikovskiy, Corresponding Member of the USSR Academy of Sciences, said in his report, have to adapt themselves to a qualitatively new situation in international relations, the result first and foremost of the victories won by socialism in the competition between the two world systems, victories which have strengthened the forces of the world revolutionary process. Since the ability of the imperialist powers to carry out military aggression has been blocked to a certain extent they are now focussing on

economic expansion (although military-industrial complex which exerts a telling influence on their policy has not discarded military methods).

The reporter dwelt at length on an analysis of the objective laws of reproduction in the developed capitalist countries, on the changes caused by the scientific and technological revolution in the industrial structure of these countries, on the new phenomena in the export of capital connected with "industrial neocolonialism." Despite imperialism's attempts to adapt itself to the present conditions in the Third World, Mileikovskiy went on to say, its neocolonialist strategy is encountering the growing resistance of progressive forces whose social base is steadily expanding.

The present situation is compelling bourgeois ideologists to work out a "new approach" to the Third World, said V. Tyagunenko, Corresponding Member of the USSR Academy of Sciences. Reconsideration of the neocolonialist strategy is prompted by political factors—fundamental changes in the balance of world forces in favour of socialism, formation of new sovereign states, transition of a number of countries to the non-capitalist path of development—and also by economic factors. The scientific and technological revolution has objectively necessitated the reorganisation of the international division of labour. The sharp competition between the monopolies compels them to look for ways of reducing production costs by transferring to the developing countries labour-intensive, "water-consuming", technologically simple and biologically unhealthy industries.

As the participants in the discussion noted, the policy of holding back industrial development in the Third World has been replaced by the neocolonialist conception of industrialisation which provides for the transfer to the newly-free countries of indus-

tries which are not dynamic, that is, industries with a low organic composition of capital, low productivity and poor capacity for accumulation and the utilisation of mostly simple living labour. The purpose of the said conception is to secure the intensified exploitation of cheap labour and the concentration of the dynamic industries in the home countries.

Many of the speakers observed that this kind of industrialisation is being carried out in the newly-free countries by international industrial giants. The establishment of world concerns is a contemporary form of exploitation of the young states. These multinational companies exhaust their natural resources, pollute the environment, foment social contradictions.

Some of the conference participants expressed the view that although the significance of the emergent countries as sources of high monopoly profits is relatively decreasing in the age of the scientific and technological revolution the imperialists are attaching ever greater importance to these countries in their global strategy. This strategy is aimed at developing capitalism in breadth and depth. The interests of the capitalists as a class sometimes run counter to those of individual monopolies when it comes to extracting profits.

Whereas only recently the neocolonialists sought to prevent the industrialisation of the Third World, now they try to keep it in scientific and technological dependence. Formerly it was the industrial West and its agrarian-raw materials appendage—the developing countries that contraposed each other. Now the neocolonialists want to contrapose the industrial-agrarian young states to the technico-scientific West.

The imperialist powers use their technico-scientific monopoly to exert pressure on the countries of Asia, Africa and Latin America. The level of technology is a major watershed between the developed and developing countries. A developed economy grows mainly at the expense of inno-

vations in technology and production methods, a developing economy—at the expense of the assimilation of existing technological designs and methods which have to be adapted to a backward industry.

Technological neocolonialism seeks to prevent or restrict the use of up-to-date machinery by the young states, to sell them obsolete and used equipment, production secrets that are no longer of value in the West, to restrict the transmission of licences. It also pursues a policy of discrimination against national cadres.

Beginning with the sixties the national-liberation movement developed into a struggle against the exploiter system. The imperialists were compelled to change their social strategy with respect to the Third World. The new strategy is designed to avert by means of social reformism a revolutionary explosion and, consequently, a breach in the imperialist chain in one or another of its links, to create for the neocolonialists supports in the person of the local bourgeoisie and to bolster these supports.

The neocolonialists have changed their strategy also in the political field. Imperialism wants to split the developing countries into separate groups and to isolate them from the world socialist system. In the ideological field the imperialists are now staking on nationalism and anti-communism. They are exacerbating the national question, are trying to pit nationalism against the class struggle, to prevent the national movement growing into a social movement.

The speakers spoke about the different strategies of individual capitalist states—the USA, England, France, the FRG, Japan, Italy and Canada; about the imperialist essence of Israel's policy. They noted that by their actions in the developing countries the Maoists are rendering support to the neocolonialists.

The reporters devoted much attention to collective, "integrated" neocolonialism, which was a reaction to the growth of the national-liberation movement (in particular,

the EEC's policy towards the associated countries, the attempts of the imperialists to exploit the regional groups formed by the developing states themselves).

It was also noted that the increase in the number of socialist-oriented countries leads to an ever greater differentiation in the strategy of the imperialist powers towards the two groups of the newly-free nations.

Social orientation, noted Professor S. Tyulpanov, is the main direction along which the disintegration of the contradictory anti-imperialist unity of the Third World, which covers a whole historical period, is proceeding. Professor Tyulpanov devoted special attention to the national strategy of development pursued by the countries of socialist orientation, to the formation of a national mechanism of reproduction, independent of imperialism. Non-capitalist development means a process of establishing increasing ties with the socialist states and, in perspective, inclusion in the socialist international division of labour. An objective law of the developing countries is the growing role of the state in economic management. This is particularly the case in the countries that have taken the non-capitalist path.

The conference participants stressed that one of the immediate tasks confronting the emergent countries is to decolonise foreign economic relations, and achieve equal rights in the international division of labour. The conference discussed the question of the attitude to foreign capital which is the material basis of neocolonialism, of the forms of controlling it, and of nationalisation. The participants noted that highly important are the measures designed to restrict the sphere of foreign capital's influence in the main sectors of the national economy.

A number of reports were devoted to the question of joint action against neocolonialism in international organisations, cooperation, on an inter-state basis, of countries export-

ing a certain kind of raw materials, and to economic integration. The speakers noted in this respect the growing differentiation within the Third World, the attempts by the imperialist powers to influence the character of integration, to use it in their own interests.

The conference also discussed the strategy of industrial development of the newly-free countries. The reporters opposed the so-called alternative variants of development. The decisive thing is not whether to give preference to heavy or light industry, but to find the optimum correlation between them and also between traditional and newly-formed industries. The speakers noted that although there cannot be a single model it is important to build up industries which further reproduction on an expanded scale.

The socialist community of nations is rendering all-round support to the emergent countries in their struggle against neocolonialism. In his report "Socialist Economic Integration and Long-Term Cooperation with Third World Countries" L. Zevin, D. Sc. (Econ.), noted that the developing states have become an important economic partner of the Soviet Union. In 1970-1971 they accounted for over 13 per cent of its foreign trade. Cooperation of the socialist countries with the developing countries "has brought with it a fundamentally new phenomenon—the equitable and mutually beneficial division of labour between countries with different levels of development and different social systems. This cooperation now counters the system of imperialist exploitation in the sphere of international economic relations".

The recommendations adopted by the conference underscore the imperative need to intensify the struggle against the bourgeois ideology implanted by neocolonialism in the developing countries, to thoroughly elaborate the theory of non-capitalist development, constantly to expose

the bourgeois and reformist concepts of "modernisation" and to contrapose to them the Marxist-Leninist proposition on the need to abolish the politi-

cal and socio-economic dependence of the developing countries.

E. Abllna

THE EASTERN VILLAGE TODAY: MAIN WAYS OF ITS EVOLUTION

Agrarian problems traditionally hold a notable place in Soviet oriental studies. In recent years the range of research in this field has been extended. A number of original works has been published covering both individual countries and regions. A monograph written by a group of authors, *The Agrarian Question in Countries of Asia and North Africa* (See a review of this book in *Social Sciences*, No. 2(4), 1971), has been issued.

In May 1973, the Institute of Oriental Studies, USSR Academy of Sciences, held a conference which summed up some results and outlined the trend of new researches in the present-day Eastern village. Some 25 papers and communications were read, more than half dealing with agrarian problems of individual countries and groups of countries in South and South-East Asia, the Middle East and Africa.

Special attention was paid to questions of methodology. The attained general theoretical level of agrarian economic researches has enabled Soviet scholars to go over to a comprehensive study of the peasantry as a definite community. The processes under way in the agrarian sphere are examined not only "from within" but also "from without". Such an approach is explained by the fact that socio-economic dynamism in the development of the village in Third World countries is now closely linked with processes beyond the agrarian sphere and even national bounds. This village, converted into the "periphery" of the world capitalist economy, is subjected to an ever greater impact of the contemporary scientific and technological revolution and the competi-

tion between socialism and capitalism on a world scale.

Soviet orientalists who adhere to Marxist positions on the unity of the world historical process increasingly use a comparative analysis of the evolution of the village in the East today and of the Western village, in the period of transition from feudalism to capitalism.

The conference was marked by a lively discussion of problems linked with the substance, evolution and interaction of intermediate agrarian structures formed as a result of the disintegration and decline of the traditional mode of production.

It was pointed out that the specific features of the multistructural agrarian economy in the East consists in that the structures which in the West were ousted and succeeded each other are preserved here; they coexist in time and space, forming an anomaly resulting from the contradictory influences exerted by the world capitalist system, a country's own national state and also other non-economic factors. The conference emphasised the need for further deeper study of these processes, particularly the impact of state regulation and state ownership on the evolution of the agrarian sphere.

V. Rastyannikov, D. Sc. (Econ.) pointed out in his paper that since the economy of developing countries had been "incorporated" into the world capitalist system as a subordinate element while the old forms of property (on whose basis intermediate structures grew up like a huge cancer tumour) were not eliminated, the conservative form became dominant in the agrarian economy. According to Lenin's evaluation, the characteristic

feature of this evolution "is that mediaeval relations in landowning are not liquidated at one stroke, but gradually adapted to capitalism, which because of this for a long time retains semi-feudal features" (V. I. Lenin, *Collected Works*, Moscow, Vol. 15, p. 140).

The "green revolution" attracted close attention at the conference. Being the biggest economic shift in the village of Asian countries, this process leads to the ousting of the age-old traditional peasant population, to polarisation of the village along class lines. The "green revolution" in its capitalist form can create a bipolar model of an agrarian society. At one of its poles will be comparatively limited centres of highly productive farming encouraged by the state. At the other pole is the agrarian "periphery" which is bled white, expropriated and exploited by the worst methods of small-scale and tiny production. It makes a huge "backwater", a reservoir of pauperism and despair and at the same time provides an inexhaustible source of cheap wage labour for capital. The more intensively capitalist farming is introduced, the more painfully the exploited wage workers, the expropriated producers and propertyless strata in general will feel the oppression of the landowning monopoly, the stronger will be the growth of the movement from below for the abolition of this monopoly and the demands for deep-going land reforms.

The participants in the discussion noted that the new system of social needs shaped under the influence of external factors, including world socialism, acted as a major catalyst of agrarian changes. It is these circumstances that largely explain why in some of the developing countries the ruling groups themselves initiated land reforms, sacrificing the interests of the traditionally most powerful stratum, the big landowners, even when dangerous pressure "from below" did not yet exist.

The conference revealed the gro-

wing scale of studies by Soviet scientists of the social and ideological aspects of the village evolution in the Third World. Let us recall that bourgeois orientalisks more than once attempted to lay the main share of the blame for the lag of the East behind the West on traditional institutions (the community, consanguineous clan groups and tribes). In the opinion of Soviet orientalisks, reaffirmed at the conference, the cause of this lag should be sought not in some special conservative, retarding role of these institutions. The cause-and-effect link here can also be the reverse: the preservation of strong survivals of traditional institutions in one or another country is an indicator, evidence, and, to a certain extent, is a result of the weakness of capitalism's positions, but by no means the prime cause of this weakness.

At the same time the discussion participants pointed to the necessity for an historically concrete approach to the intricate and contradictory relationship of traditional and contemporary elements. It was pointed out, for example, that the first conflicting situations of the "green revolution", which arose because of the disintegration of traditional institutions, consisted in that the propertyless clung to these institutions as a source of social guarantees and tried to prevent their break-up by the leaders of the "green revolution"—the dominant and traditional hierarchy of the rich groups in the village society.

Zh. Smirenskaya, Cand. Sc. (Hist.), emphasised in her paper that the experience of social movements in Asian countries in modern times demonstrated the exceptional stability of traditional stereotypes of thinking and behaviour of the peasant masses. The consciousness of a considerable part of the peasantry at times lags behind the level of the socio-economic changes which are being effected. The remoulding of the traditional psychology of the rural masses, the emergence of a class consciousness of the proletariat and

proto-proletarian strata in the village is a long process. It is possible only given the fullest democratisation of the lower links in the socio-political structure, stimulation of initiative "from below" and tremendous organisational, ideological and educational work by revolutionary-democratic parties and organisations in the countryside.

L. Yablochkov, Cand. Sc. (Hist.), pointed to the intricacy of social relations in the present-day village of Tropical Africa. The estate-class divi-

sion in this village remains imprecise, because it is glossed over by clan and tribal, religious and personal bonds which densely enmesh the entire society. That is why to ascertain the social mainstay of revolutionary democracy it is necessary to take into account not only the purely economic interests but also the evaluation of the activity of people, customs and traditional principles which are rooted in social consciousness.

G. Abramov

FORECASTS OF THE DEVELOPMENT OF HIGHER EDUCATION IN THE USSR

"Methodological Questions of Planning and Forecasting the Development of Higher Education in the USSR" was the subject of a scientific conference held in Moscow in April 1973. Organised by the USSR Ministry of Higher and Specialised Secondary Education and the Moscow State University, it was attended by more than 700 people, among them leading figures of the country's universities and institutes, representatives of the scientific centres of all the Union Republics, ministries and departments, noted economists and sociologists. Scientists of the German Democratic Republic, Poland and Czechoslovakia also took part in the conference.

R. Khokhlov, Corresponding Member of the USSR Academy of Sciences, Rector of the Moscow State University, made the introductory speech. Discussing the main purpose of the conference, he pointed to the organic link of its subject matter with the general problem of elaborating and widely introducing scientific principles in the entire higher educational system.

A paper "Prospects of the Development of Higher Education in the USSR" was read at the plenary ses-

sion by Professor N. Yegorov, Deputy Minister of Higher and Specialised Secondary Education of the USSR. He underscored the importance of the long-range national economic development of the USSR for 1976-1990, now being elaborated in accordance with a decision of the CC CPSU and the USSR Council of Ministers, which will also provide for the advance of higher education during that period.

The advantages of socialism in utilising the possibilities of the scientific and technological revolution, he stressed, can be most fully realised given the continuous improvement of the educational system and the extension of training specialists in keeping with the rates of developing the economy, science and culture. In 1976-1990 it will be necessary to secure a further improvement in the entire system of education and training of personnel, considering not only the present-day but also future requirements of society so as to gradually shift the higher educational system onto a qualitatively new scientific and technological basis.

The task of forecasting is to bring out the development trends in this sphere. Main attention should be paid

not so much to constructing a complete model of the specialist in the year 2000 as to work out and implement measures which take into account the possible trends of scientific, technological and social progress. The tendency towards a synthesis of many sectors of science and technology, as Prof. Yegorov pointed out, is already clearly discernible now. That is why the specialist of the future must have a high-level and wide-range theoretical training. He will have to deal not only with the narrow sphere of his speciality but also with allied sectors of science and technology.

In forecasting the range of training and the content of instruction of the future specialist it is necessary to proceed from the demand that university and institute graduates must under any trend in the development of science, technology and culture be able efficiently to work in their field and master new equipment and technology with the least expenditure of additional labour and time. In face of such demands the training of a specialist must provide for comprehensive instruction: the theoretical part taught in the main at the university or institute, necessary practical training after graduation and systematic advanced training at least once in five years.

Professor Yegorov further stressed the necessity for improving the methods of instruction and discussed the main trends in this sphere. This improvement does not presuppose fundamental changes in the method of instruction, for example, giving up lectures as a form of passing on knowledge and the transition solely to TV and machine instruction. But in forecasting the development of higher education consideration must be given to the fully natural process of so-called industrialisation of education, which meets the modern tendencies of the scientific and technological revolution. The latest technical facilities will be vigorously introduced in the teaching process, all types of instruction will be provided

with the latest scientific and technical facilities.

One of the important aspects in the development of higher education is the location of universities and institutes with an eye to the future advance of the productive forces and to socio-demographic factors. A considerable expansion of university and institute training in the Kazakh, Kirghiz, Moldavian, Tajik and Turkmen Union Republics is envisaged. In the long-range plan special attention must be given to the development of university education which has to become the leading link ensuring a higher scientific level of training specialists in all spheres. Much space in the paper was given to the future of engineering education, the most efficient utilisation of the scientific potential of the higher educational system in questions of training and advanced training of scientific and pedagogical personnel.

A number of other papers was read at the plenary session: "Higher Education as a Sector of the National Economy in the System of Socialist Reproduction" by Professor M. Soldkov of the Moscow State University; "Some Important Problems of the Development of Education in the USSR" by A. Markushevich, Member of the USSR Academy of Pedagogical Sciences; "Prospects of Training Specialists in Engineering and Instrument-Making" by G. Nikolayev, Corresponding Member of the USSR Academy of Sciences, Rector of the Moscow Higher Technical School; "Questions of Planning the Development of Higher Education in Conditions of Scientific and Technological Progress" by A. Shuruyev, Head of the Subdivision of Training Young Specialists, USSR State Planning Committee. Papers were also read by Professor V. Miller, Rector of the Latvian State University, "Some Problems of Forecasting the Development of University Education"; V. Rzhnevsky, Corresponding Member of the USSR Academy of Sciences, Rector of the Moscow Mining Institute, "Substanti-

ation of the Need in Engineers for the Mining Sectors of the Economy"; Professor Y. Lavrikov, Rector of the Leningrad Financial and Economic Institute, "Model of the Professional Training of an Economist"; Professor S. Sarkisyan of the Moscow Aviation Institute, "Forecasting the Development of Science in the Higher Educational System"; Professor I. Kalyatsky, Rector of the Tomsk Polytechnical Institute, "Development and Improvement of Higher Polytechnical Education"; Professor V. Venikov of the Moscow Power Institute, "Forecasting Higher Engineering Education for the Electric Power Industry" and others.

Three panels functioned at the Conference: "Theoretical Questions

of Forecasting the Development of Higher Education", "Methodological Problems of Planning the Development of Higher Education" and "Forecasting and Planning the Development of Higher Education in Other Countries". Some 50 papers were read at the panel meetings.

The Conference participants approved recommendations pertaining to problems to be studied in the next few years and formulated urgent measures required for raising the level of planning and forecasting the development of higher education.

Y. Pinchukov,
Deputy Editor-in-Chief, *Vestnik Vysshoi Shkoly*

NAUCHNY KOMMUNIZM, A NEW JOURNAL

A new journal, *Nauchny kommunizm* (Scientific Communism), organ of the Ministry of Higher and Specialised Secondary Education of the USSR, was launched this year.

Its pages are open to discussions of cardinal questions of the theory of scientific communism, the laws of socialist and communist construction, the problems of a developed socialist society, the development of the world socialist system, the world revolutionary process and the national-liberation movement. Much attention is devoted to criticisms of the bourgeois ideology of anticommunism and of the Right and "Left" opportunism and revisionism, and to questions of ideological struggle.

Information is printed regularly on scientific conferences and on discussions of works on scientific communism. The journal carries material offering consultations, articles on the methods of teaching scientific communism at institutions of higher learning, scientific reports, reviews of new books and bibliographical reviews of literature on scientific communism published in the Soviet Union and abroad.

The sections include: the working class—the main revolutionary force of our times; the laws of socialist and communist construction; the world socialist system; developed socialist society; the world revolutionary process; ideological struggle today; lectures and consultations; scientific life; criticism and bibliography; and scientific communism abroad.

This bi-monthly journal of 160 pages is circulated by subscription.

The issues that have been brought out cover a wide range of problems of scientific communism. The first issue opens with an article by Academician P. Fedoseyev on urgent tasks of research and instruction in scientific communism in the light of the decisions of the 24th Congress of the CPSU and the decisions of the CPSU and the Government on the development of the higher school.

The historic mission of the working class and the growth of its leading role in the building of a communist society are dealt with in the articles by Corresponding Member of the USSR Academy of Sciences T. Stepanyan and Professor V. Alexandrov. With the Leninist teaching as

their guide, they analyse the objective reasons for the growth of the leading role played by the working class in the building of a developed socialist society and in the transition from socialism to communism.

The world revolutionary process, the general laws and diversity of forms of the development of the socialist revolution and problems of non-capitalist development are discussed in the articles by S. Alexandrov, V. Agafonov, Y. Troitsky and B. Mitupov.

Some leading scholars examine problems linked with the laws of socialist and communist construction. The integration of social and natural sciences in the solution of managerial problems is the underlying theme of an article by Corresponding Member of the USSR Academy of Sciences V. Afanasyev. Developed socialist society is discussed in the articles by V. Semyonov, A. Kovalev and S. Kaltakhchyan. The problem of the individual in the light of the scientific and technological revolution is examined by N. Berezhnoy, E. Balagushkin and A. Khashimov.

The 125th anniversary of the *Manifesto of the Communist Party*, written by Karl Marx and Frederick Engels, has been marked with the publication of articles by Y. Krasin, G. Bagaturia and V. Zenov. These articles trace the formation of the theoretical content of the *Manifesto* and expose the anti-Marxist misrep-

resentation of the basic ideas in that first programme document of communism.

Articles by T. Burmistrova and O. Konovolyuk criticising bourgeois falsifications of the solution of the nationalities question and class relations in the USSR are printed under the general heading "Modern Ideological Struggle".

The division headed "Scientific Life" contains reviews of an international scientific conference on the experience of socialist reforms in the USSR and the international significance of that experience, an international symposium on the laws and phases of the building and development of socialism, and an all-Union scientific conference on the laws of the formation of the Soviet people as a new historical community.

A number of works by Soviet and foreign authors is reviewed in the division headed "Criticism and Bibliography". A review of books published in Bulgaria on the role of the working class in the building of a developed socialist society is printed under the general heading "Scientific Communism".

This journal has attracted the attention of scholars. It is a useful source of information for specialists on scientific communism and for the general reader interested in socio-political problems.

V. Zhmakov

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NEW BOOKS ON THE SOCIAL SCIENCES

V. Alexandrov, *Lenin and the Comintern (From the History of the Elaboration of the Theory and Tactics of the International Communist Movement)*, Moscow, Mysl Publishers, 1972, 529 pp.

The monograph is based on an analysis of Lenin's works, Comintern documents and material, memoir litera-

ture and various publications by Soviet and foreign authors. The author focuses attention on questions of communist theory and tactics which are of paramount importance for the international communist movement of today, exposes bourgeois and reformist falsifiers who write about Lenin and the Comintern.

M. Alexeyev, *Pushkin. Comparative and Historical Studies*. Leningrad, Nauka Publishers, 1972, 468 pp.

Academician Alexeyev's book is devoted to Pushkin's works in various periods of his life. It contains researches on general themes (Pushkin and the science of his time, Pushkin in translations, Pushkin's attitude to the problem of "eternal peace", and others), as well as on more specific subjects ranging from his poetry written in the Lyceum days and *Gavriilada* to *Boris Godunov* and *Evgeny Onegin*. Some of the articles in the book have appeared in various Soviet and foreign publications during the last fifty years, but have been revised for the book under review.

Formation of the Union of Soviet Socialist Republics, Collection of Documents, Moscow, Nauka Publishers, 1972, 531 pp.

The collection contains over 200 documents reflecting the history of the formation of the USSR and the mass character of the movement for unification of the peoples of the Soviet republics. The reader will also find the major works by V. I. Lenin, his statements on the principles of the Soviet nationalities policy and of the formation of a Soviet multinational state, the basic Decrees of the Communist Party and the Soviet Government, decisions of congresses, conferences and plenary meetings of the CC CPSU.

General Problems of Money Circulation in the Asian Countries, Moscow, Nauka Publishers, 1972, 286 pp.

The book analyses money circulation in the Asian countries, its general regularities and stages of development, functioning peculiarities of money systems in conditions of a mixed economy, dependence of money circulation on structural characteristics of investments, specific features of deposits, the effect of changes in money circulation on working people's condition, prices, the system of regulation of money circulation and international financial

and currency relations of the Asian countries.

History of Genres in Russian Literature of the 10th-17th Centuries, Transactions of the Division of Ancient Russian Literature, Vol. 27, Leningrad, Nauka Publishers, 1972, 467 pp.

The collection chronologically embraces the seven centuries' history of ancient Russian literature from the inception of the written language up to the time of Peter the Great. Some articles study the genre specifics of literary works (in particular, such literary monuments as *The Lay of Igor's Campaign*, *The Sermons of Vladimir Monomakh*). Others deal with the history of some genres and genre combinations (the chronograph, oratorical prose, hymnography, syllabic poetry) still others are of a theoretical nature: they establish the principles of genre formation and their dependence on folklore and on Russian literature as a whole.

N. Inozemtsev, *Contemporary Capitalism: New Phenomena and Contradictions*, Moscow, Mysl Publishers, 1972, 160 pp.

This new book by Academician Inozemtsev treats of the following problems: the impact of the revolutionary process on capitalism; the competition and struggle of the two world systems; the changes in the capitalist system caused by the scientific and technological revolution; the latest developments in the concentration and monopolisation of production, in the mechanism of state-monopoly capitalism; the changes in imperialist policy and inter-imperialist contradictions under the influence of the changes taking place in capitalist society; specific features of the revolutionary process in capitalist countries and its most important trends. Each of these problems is dealt with in a separate chapter. The monograph is rich in factual material which is clearly and concisely presented.

M. Kim, *The Soviet People—a New Historical Community of Peoples*,

Moscow, Politizdat Publishers, 1972, 264 pp.

The new book by M. Kim, Corresponding Member, USSR Academy of Sciences, treats of the formation of the Soviet people as a lawgoverned historical process, inseparably linked with the formation and development of socialist society. Characterising the Soviet people as the first free union of free workers in history, the author drawing on extensive historical material, analyses the various stages of the formation and development of this union, beginning with the Great October Socialist Revolution. The book shows the outstanding role played by the Communist Party in the formation of the Soviet people—a new historical community. The concluding section of the book examines the factors of the Soviet people's further development and its role in mankind's progress.

A. Kovalskaya, *On the Road to Freedom (The Struggle of the Peoples of the Colonies and Dependent Territories of the Western Hemisphere for Independence After the Second World War)*, Moscow, Nauka Publishers, 1973, 192 pp.

This monograph is the first scientific work in Soviet historiography analysing the neocolonialist policy of imperialist powers in the colonies of the Western hemisphere and the types of national-liberation movement in these countries. The author traces the history of struggle of the peoples of Guiana, Barbados, Trinidad and Tobago for their independence, tells of the imperialist powers' methods of colonial policy in Martinique, Guadeloupe, Puerto Rico and in other countries.

P. Kopnin, *Dialectics, Logic, Science*, Moscow, Nauka Publishers, 1973, 324 pp.

The book studies major problems of Marxist dialectical logic—the Leninist principle of the unity of dialectics, logic and the theory of cognition; methodological function of the categories of dialectics in scientific cognition; construction of the system

of dialectical categories; the method of advancing from the abstract to the concrete; the relationship between logical and the historical methods of research; the connection between theoretical and empirical levels of scientific knowledge, etc. Special sections are devoted to research into the role of contradiction in the process of cognition, to an analysis of the functions of the hypothesis in the development of science, to the interrelation of the hypothesis and theory. The author criticises modern bourgeois and revisionist philosophical concepts in his positive elaboration of the said problems.

G. Levinson, *The Philippines on the Way to Independence (1901-1946)*, Moscow, Nauka Publishers, 1972, 398 pp.

The book is devoted to the history of the Philippines' national-liberation movement from the time of the establishment of American rule up to the proclamation of independence. The development of the peasant working-class and communist movements, problems of nationalism and ideological aspects of the anti-imperialist struggle are among the questions discussed in the book.

Marxist-Leninist Methodology of Military History, Moscow, Nauka Publishers, 1973, 350 pp.

The monograph (edited by P. Zhilin, Corresponding Member, USSR Academy of Sciences) for the first time examines in detail the essence, structure, principles and functions of the Marxist-Leninist methodology of military history, gives a comprehensive definition of the subject and contents of the science of war. The objective character of the laws of military history, the methods, forms and stages of research in this sphere and the methodological significance of the categories of materialist dialectics for military history are shown on the basis of the ideological and theoretical legacy of the classics of Marxism-Leninism, of an analysis of vast historical military material.

The methodology of the history of wars, military construction, the art of

war, and other constituent parts of military science are thoroughly analysed.

The book contains theoretical conclusions and recommendations which are of major importance for the further development of military history.

Kh. Momdjan, *Marxism and the Renegade Garaudy*, Moscow, Nauka Publishers, 1973, 192 pp.

The book criticises the philosophical, sociological and socio-political views of Roger Garaudy, who revises some important principles of materialist dialectics. The author shows that in his "revision" of Marxist philosophy, Garaudy seeks to substantiate the possibility and necessity for "mutual enrichment" of materialism and idealism. Momdjan effectively refutes Garaudy's conclusions concerning current scientific and technological revolution, which actually signify rejection of the leading role of the working class and its Marxist-Leninist parties in the present epoch, sharply criticises his fundamental concessions to religious views. Garaudy's views are examined in close connection with the views of other representatives of Right-wing revisionism.

O. Orlik, *Russian Progressives and Revolutionary France (the First Half of the 19th Century)*, Moscow, Nauka Publishers, 1973, 299 pp.

The monograph examines the process of the establishment of revolutionary and democratic ties between the progressive representatives of the Russian and French peoples in the period of the birth of the Russian liberation movement and the development of the socio-political struggle in France in the years of the restoration of the Bourbons and the July bourgeois monarchy, and particularly during the revolutions of 1830 and 1848. Based on rich archive material, the press and literature, the book shows the participation of Russians in the socio-revolutionary struggle in France, as well as the activities of representatives of the French intelligentsia in Russia.

A. Popov, *The Peoples of the USSR. Introduction to Ethnonymics*, Leningrad, Nauka Publishers, 1973, 171 pp.

The book is the first attempt in this field to give a popular description of the main methods of studying ethnic names (tribal and national) for possible use in historical and linguistic studies. The author examines ethnonymics as an auxiliary branch of historical science containing important elements of linguistics. The book gives a number of concrete examples from the history of ethnic names of the peoples of the USSR.

Practice and Cognition, Moscow, Nauka Publishers, 1973, 360 pp.

The book shows the practical nature of cognition and the methodological function of the dialectical and materialist principle of practice as a basis of cognition and a criterion of truth. The problem of the interconnection between practice and cognition is tackled from the aspect of the development of the dialectical and materialist theory of reflection. The development of the theory of cognition as a theory of reflection and an analysis of concrete problems are linked with criticism of contemporary Western Marxologists and revisionists who seek to oppose the epistemological to the humanistic aspect of practice, to deduce from this opposition the so called incompatibility of the principle of reflection and the principle of practice and thus to separate Lenin's theory of reflection from Marx's understanding of human nature and human cognition.

S. Shmidt, *The Formation of the Russian State*, Moscow, Mysl Publishers, 1973, 359 pp.

The events of the middle of the 16th century are a very important stage in the formation of the Russian centralised state, the years of the beginning of the "Moscovite Tsardom". The author examines such questions as the national and international significance of the first coronation in the history of Russia, the impact of the Moscow uprising of 1547, the policy of the elected Rada

and *oprichnina* and arrives at interesting and important new conclusions. The book is based on wide literary and archive sources.

A. Sukhov, *Religion as a Social Phenomenon (Philosophical Problems of Research into Religion)*, Moscow, Mysl Publishers, 1973, 144 pp.

The author is known for his works on scientific atheism. In his latest work Sukhov shows the category of religious alienation as a very important one for a philosophical understanding of religion. He examines the process of religious reflection in all its complexity.

S. Utchenko, *Cicero and His Time*, Moscow, Mysl Publishers, 1973, 390 pp.

This work by Utchenko, D. Sc. (Hist.), and a Soviet expert in the history of Rome, deals with the life and activities of the famous Roman orator, writer and statesman, Marcus Tullius Cicero. Written in the genre of political biography, the book graphically portrays the features and contradictions of the epoch which abounded in dramatical events: revolts of slaves, plots, civil wars. The book gives pen-portraits of famous figures of the time: Spartacus, Caesar, Augustus and many others.

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