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FEATURES IN ESTABLISHING THE MATERIAL AND TECHNICAL BASE OF COMMUNISM

- USSR -

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## FEATURES IN ESTABLISHING THE MATERIAL AND TECHNICAL BASE OF COMMUNISM

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### I

The period of expanded communist building into which the Soviet land has entered has as its chief content the creation of the material and psychological conditions for the higher phase of communism. This gigantic process embraces all aspects of social life, beginning with its economic basis. The 21st Congress of the CPSU, which went down in history as the congress of the builders of communism, armed the soviet people with a scientifically elaborated program for moving ahead to complete communism. Comrade N. S. Khrushchev's report and the resolutions of the congress provided a profound analysis of the radical problem of the transition from socialism to communism, which constitutes a creative addition to Marxist-Leninist theory developing in close association with the practical struggle for communism.

A decisive material factor in ushering in the higher phase of communism is the creation of its material-technical base -- a tremendous increase in the productive capacity of society. The decisive role of this precondition is due to the fact that a gigantic flourishing of productive capacities represents that foundation indispensable for the maturation of all other preconditions to communism. The significance of such preconditions to communism, such as bringing the city and country closer together on a massive scale, abolishing the divisions between physical and mental labor, the conversion of labor into the prime vital necessities of man, has always been clear. There is no doubt but what the role of these prerequisites to communism will emerge ever more clearly as we come near to the cherished goal. At the same time, however, there is likewise no doubt but what these conditions cannot mature of themselves, in isolation from the main and decisive process; that is from a gigantic growth in the productive capacities of the socialist society.

In its turn, the process of strengthening and further developing socialist social relations, their constant improvement and

constant approximation to the type of relations of the communist society, exerts a tremendous reciprocal influence on the development of production relations. However, as the materialist concept of history teaches, in the final analysis the leading role in this complex process of reciprocal action necessarily belongs to material production, which is the basis for the existence of society.

It is therefore natural, as was emphasized at the 21st Congress of the CPSU, that the creation of the material-technical base of communism -- a new and powerful upsurge of productive capacities -- is the basic practical problem of our country in its present period of development. The 21st Congress defined the main task of the current seven-year period in the economic sphere as the comprehensive development of the nation's productive capacities, and the achievement of a tremendous growth of production in all branches of the economy on the basis of a preferential expansion of heavy industry, which will make it possible to take a decisive step in creating the material-technical base of communism, and to ensure the victory of the USSR in the peaceful economic competition with the capitalist countries. As is further pointed out in a resolution of the congress, this strengthening of the nation's economic potential, further technical progress in all branches of the national economy, and a continuing increase in the productivity of social labor, should ensure a substantial rise in the living standard of the people.

Each social system has its own kind of material-technical base. The progressive development of society is based on the progress of productive capacities -- from the most primitive and earliest period of human society to modern complex technology, signifying a tremendous increase in man's power over nature. In "The Poverty of Philosophy," opposing his materialist view of history to the idealist philosophy of Proudhon, Marx noted that as human beings acquire new productive capacities they change their mode of production; and with the change in the mode of production -- the mode of securing a livelihood -- they also change all their social relations. In this connection Marx wrote that the hand-operated mill yields a society with a feudal lord at the head, while the steam-operated mill yields a society headed by an industrial capitalist. Mankind has come a long way from the rudimentary tools of labor of the primitive era to modern machine industry.

Let us consider the process of the rise of capitalism. During the first centuries of its existence, capitalist production was based on the old technical foundation of manual labor which it had inherited from petty craft production. It was only much later that capitalism created its own adequate basis in the form of large machine industry. The first periods of development of capitalism -- up to the Industrial Revolution, which was engendered by machine production -- was, as described by Marx, a period of the

formal subordination of labor to capital. However, the actual period of subordination of labor to capital occurred only with the development of capitalist production on the basis of large machine industry.

The building of a socialist society differs radically from the process of the rise of capitalism. In the latter case there developed a system in which the exploitation of man by man was brought to an extreme degree; in the former case there was developed a system free from any exploitation of man by man. In the latter case there was random formation of production relations between human beings, ruling over man and subjecting him to despotic power. In the former case, on ground cleared of the weeds of exploitation, the most profound revolution in world history created a new type of production relations among human beings -- the production relations of a socialist society -- relations of comradesly competition and cooperation -- relations of mutual assistance in joint labor.

There is no doubt, however, that for the development of the socialist society as well, basic importance attaches to the nature of its material-technical base.

We are all familiar with Lenin's observation that a large machine industry capable of reorganizing agriculture as well, is the only possible material basis for socialism. This observation is a key to understanding the basic difference between the material-technical base of capitalism and the material-technical base of socialism. Although machine industry is an adequate base for capitalism, the latter is not in a position fully to reorganize agriculture. The opposition between industry and agriculture is one of the basic features of the capitalist system. The capitalist mode of production does not abolish the many forms of economy based on precapitalist relations. Pure capitalism does not exist anywhere. Therefore, the material-technical base of capitalism necessarily coexists with outmoded methods of cottage industry under the conditions of which the labor of millions and millions of people is expended. The random diversification inherent in the capitalist system makes this inevitable.

By contrast, socialism means not only the creation of heavy machine industry but the socialist transformation of millions of small peasant farms on a new technical and socio-economic foundation -- a transition to the large-scale, mechanized production of kolkhozes and sovkhozes in agriculture. Therefore the material-technical base of socialism is distinguished by its monolithic nature. This constitutes one of the great advantages of socialism over capitalism.

Marxism-Leninism teaches us to distinguish between the building of socialism on a foundation inherited from the capitalist system, and the further development of a socialist society on a new foundation which it has itself created. When socialism develops on

its own foundation, incomparably broader prospects and possibilities are opened up before it.

Up until the socialist revolution, the development and improvement of productive capacities -- the transition from the material-technical base of one mode of production to the material-technical base of another, more progressive mode of production -- represented a random process. This process took place outside of the control of society as a result of countless acts of persons guided by their own narrow direct interests whose last thought was of the final results of their acts.

It was only the socialist revolution which put an end to this type of development and ushered in a new era -- the era of the conscious making of history by the popular masses on the basis of understanding and mastering the objective laws of social development. Under socialism, as under any social system, the sphere of material production developed in accordance with objective economic laws. However, the basic difference between socialism and all preceding forms of society consists in the fact that the possibility is created (and at the same time the necessity arises) of understanding the objective economic laws of social development and consciously utilizing them in the course of building a new life, and above all in the process of creating new productive capacities. Already the material-technical base of socialism has been created by a means radically different from that of the material-technical base of capitalism, the process of creating the material-technical base of communism differs even more from the preceding type.

The material-technical base of socialism is created under conditions of a period of transition from capitalism to socialism -- under conditions of a bitter class struggle between the forces of the new and the forces of the old. The material-technical base of communism is created under different circumstances. The question "Who shall prevail over whom?" has been definitively settled in our country. Moreover in our country socialism has won a full and final victory, since given the present ratio of power between socialism and capitalism in the international arena, there is no force in the world which could overthrow the mighty socialist camp and restore capitalism in our country.

This difference between the conditions under which the material-technical bases of the two phases of communism are created, is of tremendous significance. In the period of transition from capitalism to socialism, economic building and economic policy are subordinated to the main goal: ensuring the advantage and subsequently the full victory of socialist forms of economy over capitalist forms. The task of the maximum development of productive capacities is subordinated to this same end: it is necessary to achieve that development of productive capacities which will make for a victory of socialism

over capitalism. During the NEP Period, the Communist Party unmasked the barren slogan of a growth of productive capacities serving as concealment for the restoration plans of the agents of the Kulaks -- the Neo-Narodniki, and the right wing capitulators. The pattern of the class struggle left a deep imprint on the entire process of the nation's economic development, determining many factors in planning, was responsible for basic features of the struggle for the fulfillment of plans, and complicated the problems of a planned, proportional development of the national economy. In the transition period, new, socialist patterns of social development made their own way in the struggle against old capitalist patterns which had already been undermined but had not yet disappeared from the scene.

The creation of the material-technical base of communism is taking place under vastly improved conditions. In the economy, the new patterns proper to socialism hold undivided sway. The planned and proportional development of the national economy, and the constant and rapid growth of production, are not encountering resistance from those classes opposed to socialism, since those classes have been completely liquidated. The radical change in the purpose of production has engendered a new and powerful impulse toward a rapid growth of productive capacities. This means that society is in a position to pose and successfully solve problems on a vastly larger scale. Such is the nature of the problem of creating the material-technical base of communism. The 21st Congress of the CPSU, which approved the projected program for communist building in the USSR, noted in its resolution that this was a program for a new and mighty upsurge of the economy, culture, and material well-being of the people which in terms of its majestic scope had no equal in history.

In creating the material-technical base of socialism our country had the task of overcoming in the shortest possible period of time the technico-economic backwardness inherited from the past, and of attaining that level of development of productive capacities which had already been attained in the most highly developed capitalist countries. This task was tremendously complicated by the entire concrete-historical situation. The Soviet land was the first in history to be a land of a victorious socialist revolution. It beat a path to socialism, passing through the hitherto unsurveyed virgin soil of the historic creation of new and unprecedented forms of social life. Since it was the only socialist country, the Soviet Union laid down the foundations of the new system and created the material-technical base of socialism under conditions of inimical capitalist encirclement and a prolonged economic blockade on the part of the chief capitalist powers. These things created tremendous additional difficulties and made for incredible complications in the tasks of creating the economic foundation of socialism

and its material-technical base.

Today the process of building the material economic base of socialism in the peoples' democracies is taking place under vastly more favorable historical conditions. This problem is being solved at a time when there exists a world system of socialist economy -- the mighty camp of the socialist countries headed by the Soviet Union. The comprehensive, brotherly mutual assistance of the socialist countries, the possibility of utilizing the valuable experience of the Soviet Union, the tremendous advantages of the international socialist division of labor with a large-scale application of the principles of specialization and production cooperation -- all these things facilitate tremendously for the peoples' democracies of Europe and Asia, the solution of those problems associated with the creation of a material-technical base for socialism. Experience shows that socialism is possible and completely feasible only with that level of development of productive capacities which has already been attained in the most highly developed industrial countries of modern capitalism. The Marxists are entirely correct in affirming that capitalism has long been ripe for a socialist revolution. In any of the highly developed countries of modern capitalism, a transfer of power to the working class would create possibilities for a socialist transformation of society on the basis of the existing level of development of productive capacities.

For such countries the tasks of the period of transition from capitalism to socialism will consist chiefly in nationalizing the means of production, in overcoming the unevenness created by capitalism in the development of particular spheres of the economy, in the radical transformation of production relations both in the city and the country, in eliminating the exploitation of man by man, and eradicating the causes of this exploitation.

As for the higher phase of communism, its realization requires more than that level of development of productive capacities now existing in the most highly developed countries of modern capitalism, the United States. This goal requires a higher degree of development of productive capacities, labor productivity, and social wealth. This was metaphorically expressed in Comrade N. S. Khrushchev's remarks that the American economy is not a model for us, that victory in the competition with the United States must not be considered the final goal of our movement. On the contrary this is only a siding on which our country will cleave the most highly developed capitalist countries, while it itself moves on ahead. These comments express the idea that the attainment of communism requires a degree of development of the productive capacities of society which is altogether unobtainable by capitalism.

This fact is of tremendous importance, especially in connection with the now indisputable fact that the development of modern science and technology has brought the world right up against

a profound technical revolution. Already it may be affirmed with confidence that this revolution is a harbinger of a new qualitative leap in the sphere of application of man's power over nature. In bourgeois and social-reformist literature one finds opinions to the effect that the present technical revolution, whose shape and prospects are becoming increasingly evident, is more significant than the discovery of fire, steam, or electricity. This statement of the problem is typical of bourgeois thought, which is markedly lacking in historical perspective, and which is therefore unscientific and anti-scientific. Acutally, it goes without saying that all great discoveries of the past were necessary rungs of the ladder of social progress, and that the attainment of the present rung on this ladder would be inconceivable if the others had not been reached previously. But at the same time it is indisputable that the present day technical revolution is opening up really gigantic prospects and possibilities which only a few decades ago would have seemed fantastic. Today, life is showing at every step how the narrow framework of capitalist relations is obstructing the solution of those problems which would be quite feasible at the present level of science and technology. The systematic implementation of production automation, and the creation of unified power systems, not to mention the large scale utilization of atomic and thermonuclear energy for peaceful purposes -- all these things are encountering the impediments of private property.

Periods of the rapid development of technology create especially favorable possibilities for those countries which, as a result of specific historical causes, are moving ahead on the industrial map of the world. If this was true of those countries which overtook their competitors within the framework of one and the same capitalist system, even broader possibilities are being opened up at the present time thanks to the rapid development of technology, for the countries of the socialist system headed by the Soviet Union, which are struggling for the accomplishment of the basic economic task posed before them by history: to overtake and surpass, economically, the most highly developed capitalist countries. In the struggle for the accomplishment of this basic economic task, the socialist countries are drawing upon the decisive superiority of the socialist system of economy over the capitalist system.

## II

The building of socialism and communism is distinguished by a remarkable combination of the most sober consideration of the real situation in solving current economic problems, with a correct and far-seeing evaluation of the prospects for economic and technical development. This combination of practical realism with bold

scientific foresight served as the basis for Lenin's GOELRO Plan -- the firstborn of socialist planning. This combination is also typical of the majestic program for the expanded building of the communist society being elaborated by the Communist Party today. This program includes first of all a seven-year plan whose implementation will mark a decisive stage in the creation of the material-technical base of communism, and, at the same time, in accomplishing the basic economic task of the USSR. But this program looks beyond this: it lays down a clear and already fully concrete, practically feasible prospect for a gradual transition to the higher phase of communism. The building of a communist society has become a practical task for the soviet people, guided by the Communist Party.

The seven-year plan, which represents the concrete embodiment of the Party's general Leninist line in the present day period, marks a qualitatively new stage in the development of the productive capacities of soviet society. The qualitatively new tasks posed by the seven year plan assume the most complete realization of the gigantic possibilities of the socialist system, the tremendous achievements of Soviet science and technology, the advantages of the new forms and methods of economic management implemented by the Party in recent years, which have created new and favorable conditions for mobilizing the internal resources of the national economy and bringing new natural resources into economic turnover. The seven-year plan provides for very great shifts in the structure of production, which will have the purpose of ensuring substantial savings of resources and thereby facilitating the solution of the gigantic tasks involved in creating the material-technical base of communism. These include such measures as the radical improvement of the nation's fuel balance by means of a sharp increase in the proportion of natural gas and petroleum, the preferential construction of thermo-electric power stations which involve considerably smaller capital outlays than hydroelectric stations, and the accelerated economic development of the eastern regions of the country, with their inexhaustible natural resources.

The creation of the material-technical base of communism is such a gigantic task that its accomplishment inevitably goes beyond the framework of the seven-year plan. But the fulfillment of the seven-year plan should ensure a comprehensive development of productive capacities such that it will provide a firm foundation for the complete accomplishment of this majestic task in the next stretch of Soviet society's path to communism.

Characterizing the means for the accomplishment of this task in his report to the 21st Congress, Comrade N. S. Khrushchev pointed out that the creation of the material-technical base of communism assumes, first of all, the existence of a highly developed modern industry, complete electrification of the country, scientific-

technical progress in all branches of industry and agriculture, the comprehensive mechanization and automation of all production processes, maximum utilization of new sources of energy, of the richest natural resources, new synthetic and other materials, improvement in the cultural-technical level of all workers, further improvement of production organization, and a rise in labor productivity.

Such are the basic tasks now facing us in the sphere of creating the material-technical base of communism. In their totality, these tasks represent a scientifically based program for the comprehensive development of the productive capacities of a society as the totality of the means of production and manpower; in other words, as the totality of the material and human factors in production whose combination is necessary in order to carry out the production process. The increase of social wealth and the rise in the productivity of social labor required for the creation of an abundance of commodities presuppose, naturally, the rapid development of all material and human factors in the production process. The following are of special importance in developing the material factors in the production process: 1) power; 2) the production of instruments of labor in the broadest sense -- machine building, and the technical equipping of all branches of the economy; 3) the branches of the extraction industry and of agriculture supplying objects of labor. (Today increasingly serious competition for these branches of the economy is being offered by synthetic chemistry, which is producing new kinds of raw materials and materials whose technical and economic indexes considerably exceed those of the old raw materials.)

The qualitatively new stage in the development of the power base of the national economy is governed by the fact that we are now entering a decisive phase in the implementation of Lenin's ideas as to the complete electrification of the country. Lenin emphasized the importance of electrification in creating the material-technical base of communism. "Electrification on the basis of the Soviet system," he said, "will bring about a definite victory for the foundations of communism in our country -- the foundations of cultural life without exploiters, without capitalists, without landowners, without merchants." ("Works," Vol 30, page 343.) Lenin's famous formula -- communism is the Soviet regime plus the electrification of the entire country -- has served as a constant guide in economic building. The quantity of electric power produced per year in pre-revolutionary Russia is now being produced in the Soviet Union every three days.

The seven-year plan provides for the rapid development of the power base of the national economy, but also for large qualitative shifts in its development. The rate of growth of electric power is considerably greater than that of industry. As against

an overall increase of 80 percent in the gross industrial product, production of electric power is to be increased 110-120 percent. The electrification of the labor of industrial workers is being increased almost twofold. The preferential construction of thermoelectric power stations which use the cheapest kinds of fuel -- natural gas, mazout, and cheap coal -- is expected to insure the most effective utilization of capital outlays and the acceleration of the increase in capacities. The further consolidation of electric power stations into large power systems is aimed at the creation of a single power system, first for the European USSR and then for the entire country.

The qualitatively new stage in the development of means of labor in the broadest sense is characterized by an especially rapid rate of technical progress and the posing of such tasks as comprehensive mechanization and automation, which are the chief means of ensuring technical progress. Our economy has attained such a high level of technical development that the task of liquidating manual labor by means of comprehensive mechanization in industry, agriculture, construction, transport, loading and unloading operations, and communal economy can be successfully accomplished. Also production automation utilizing the most advanced achievements of science and technology, is expanding rapidly. The expansion of machine production leads to the creation of an automatic system of machines whereby, in Marx's description, "...the working machine performs all of the motions necessary for processing the raw material without human assistance, and requires nothing beyond its control by the worker." (Capital, Vol 1, page 387.) Modern automation with the application of electronics, is tremendously expanding possibilities for carrying out the most varied production processes "without human assistance," opening up an unlimited area for production growth and increasing labor productivity.

Production automation represents on the one hand the natural perfection of comprehensive mechanization; and, on the other hand, it means a qualitatively new stage in technical progress. Today we have already posed the problem of making a changeover in many industries from the automation of the individual unit to completely automated shops and enterprises. The chief precondition to this is the fulfillment of the quotas in the seven-year plan for increasing the production of automatic and semi-automatic transfer machines, instruments, computers and mathematical machines, and all other means of automation. Many actual instances show the nature of the possibilities for changing over to production "without human assistance." Thus at the Ural Heavy Machine-Building Plant work has been initiated on plans for an automatic blooming mill with a productivity of up to four million tons of rolled iron per year, which is more than the total quantity of rolled iron produced by the entire industry of pre-revolutionary Russia. This automated

plant will be put into operation during the seven year period. The automated blooming mill comprises dozens of very complex machines and mechanisms, including program-type computers, television installations, and other modern means of automation. All technological operations will be performed by automatic machines. This colossal installation will be controlled by one man.. Furthermore, tremendous possibilities in connection with the transition to comprehensive automation, are associated with the industrial application of machine tools using coded electronic control. The systems of coded programmed control will in the near future take the place of the lathe operators, milling machine operators, planing machine operators, and drill operators on machine tools, while the manpower thus made available can be utilized for the purposes. At the same time the speed and accuracy of machining will be considerably increased. The importance of automatic means of control and regulation is especially great for many production processes which take place under conditions of high temperatures and pressures, in the presence of radioactive radiation, etc., in closed systems which are not directly accessible to a human being.

Machine building is the chief lever for effecting technical progress. The seven-year plan calls for the accelerated expansion of all modern branches of machines building -- in particular, heavy machine building, instrument building, and the production of means of automation and electronics. The national economy will be provided with the very latest machines created with the utilization of the most recent achievements of science and technology -- in particular, radioelectronics, semiconductors, ultrasound, and radioactive isotopes. The seven-year plan calls for the development of an extensive assortment of the latest chemical equipment, the further development of the electrotechnical industry, and the development of the most modern equipment for metallurgy. Great tasks have been posed in the area of the technical re-equipping of the machine-building industry itself.

The qualitatively new stage in the development of objects of labor is associated primarily with acceleration of development of the chemical industry and in particular the production of synthetic polymers. The accelerated expansion of this very important branch of heavy industry makes it possible most effectively to utilize the nation's natural resources. At the same time the development of the chemical industry is an important factor in the further technical progress in all branches of the national economy. The total volume of production from the chemical industry during the seven-year period will be increased almost threefold, including an increase of almost fourfold in the production of artificial fibers, and of more than sevenfold in the production of plastics and resins. Plastics and other synthetic materials will be widely used in machine building, construction, and other branches of the national economy. The new raw materials supplied by the chemical industry will be

considerably cheaper than the materials which they replace. Special importance attaches to the fact that the chemical industry will be expanded on a new basis -- with the utilization of the cheapest raw materials: natural gas and gas from oil refineries! The application of modern technological processes and highly productive equipment will mean an even greater reduction in production costs. All these things open up new possibilities in the area of raising the productivity of social labor. The creation of the material-technical base of communism is necessarily associated with qualitative changes in the basic productive resource of society: manpower. Along with continuing technical progress there will be a tremendous rise in the cultural-technical level of the workers in urban and rural areas. The development of the productive capacities and production of socialism is accompanied by such processes of tremendous historical importance as the further approximation of physical and mental labor and abolishing the distinctions between them, and the gradual transformation of labor into prime life necessities of man.

In his day, Marx exposed the cynicism of the bourgeois businessmen and their scientific errand boys, who put man on the same level as the material factors in the production process, considering the worker as a tool of labor with a soul -- as merely a means for the production of surplus value, and for enriching the capitalists.

Socialism has vastly elevated the role of the laboring masses as the genuine creators of history, making them the real masters of their lives. It is obvious that the problem of changing the character of labor and of further shifts in the position of labor in society during the period of the transition from socialism to communism, cannot be considered within the framework of the problem of the material-technical base of communism, however widely this framework be construed. The development of social labor into communist labor represents of course a special process of world-historic importance.

### III

The present day technical revolution -- even if we have in view only those prospects which have already been clearly traced out -- constitutes a qualitatively new stage in the development of productive capacities.

Between 150 and 200 years ago there began that rapid spread of machines which marked the Industrial Revolution of the end of the 18th Century and the beginning of the 19th Century, and expanded man's power over nature to an extent which for those days was tremendous. Marx pointed out that the working machine -- the performing mechanism -- is always the point of departure for the transition from handicraft or manufacturing production to machine

production. However the gigantic (for those times) expansion of man's power over nature was achieved as a result of three interdependent processes. First, the utilization of new sources of power -- steam, and then electricity -- emancipating production from the limitations imposed by the sources of energy employed hitherto: the muscle power of man and animals, and to some extent water power. Second, the machine, operating with the aid of a considerable number of working tools, opened up great new possibilities by comparison with manual labor, which was limited by the organs of man: his arms and legs. Finally, the development of production brought into the production process many minerals, whose application for production purposes had previously been extremely limited or entirely unknown.

The contemporary technical revolution is opening up new and veritably unlimited horizons in all three of these directions.

First, in the matter of sources of power. However great the sources of power now being used, they are not unlimited. Neither water resources nor fuel extracted from the earth -- coal, petroleum, natural gas -- possesses the property of inexhaustibility. It goes without saying that the reserves of sources of power on the earth are still very great, and are still being utilized to a relatively small degree. It is true that from time to time in the capitalist countries (and especially in the United States) a hue and cry is raised over the threat of the imminent exhaustion of reserves of oil (for example). But this hue and cry serves very transparent aims. Campaigns of this kind are usually launched in connection with each new adventure of notorious oil diplomacy aimed at seizing foreign oil bearing land. Nonetheless there is no doubt but what a rapid growth of the scale of production will bring into economic turnover ever new natural sources of energy which by their very nature cannot be inexhaustible. The fact that the explorations of natural resources being carried on simultaneously, are revealing ever new reserves of natural sources of power, does not basically change the situation. However the present state of development of science and technology is creating a radically new situation. The utilization of atomic energy is already opening up unlimited prospects for a growth in the power base of the national economy, and in the future the possibility of using thermonuclear energy will mean the complete liberation of the production process from any restrictions in the area of power engineering.

Second, the new technical revolution constitutes a tremendous qualitative leap as regards the second element in the production process: the means of labor. Production automation means not only the logical perfection of the principle of machine production:-- the creation of an automatic system of machines foreseen by Marx. Those forms of production automation which have already been well established at the present time, also mean something else. Whereas

previously the introduction of machinery meant that production was liberated from the limited possibilities of the organs of the human body -- the arms and legs -- today such means of technical progress as radioelectronics and cybernetics make it possible to liberate production from the limited possibilities of man's natural senses: his vision and hearing.

Third, the new technical revolution constitutes a qualitative leap as regards the third factor in production: the object of labor. During the preceding stage of development, however great the expansion of the sphere of objects of labor in proportion to the continuing progress in technology, this sphere continued to be limited by those materials which man found in the eternal storehouse of nature. And although the tremendous riches of this storehouse were by no means exhausted, they were nonetheless limited. Today the situation in this regard is changing radically. The victorious procession of synthetic polymers is ushering in a basically new stage in the development of the object of labor. Today it is possible to create materials with previously designated chemical and physical properties; and with the progress of chemistry this possibility will expand increasingly.

The prospects for the unlimited expansion of man's power over nature unveiled by contemporary trends in development of science and technology will undoubtedly materialize increasingly in the process of creating the material-technical base of communism. At the present-day stage of this process the necessary conditions and prerequisites are already being created for the materialization of the boldest and most revolutionary trends in technical progress. Comrade N. S. Krushchev stated, in his report to the 21st Congress of the CPSU: "The creation of the material-technical base of communism requires the flourishing of science, and the active participation of scientists in solving the problems associated with the further, comprehensive development of the productive capacities of our country." This report subsequently listed the most important problems to be investigated by Soviet scientists during the impending period. They include first of all such problems as mastering controlled thermonuclear reactions with a view to obtaining virtually unlimited sources of energy; ensuring the wide application of atomic energy for power and transport engines, expanding the utilization in the national economy of synthetic materials, the products of nuclear fission and radioactive isotopes; solving problems of the comprehensive mechanization and automation of production processes, and creating for this purpose new technical means on the basis of a wide application of the achievements of physics, radioelectronics, and computer technology. Together with this, great tasks are faced by the scientists working in the fields of chemistry, metallurgy, geology, various branches of agriculture, medicine, and in other branches.

The question naturally arises: Is capitalism in a position to

carry out the technical revolution which is in the offing? The apologists for capitalism are trying on the one hand to impute to Marxism the view that present-day capitalism is not capable of any growth, that it dooms productive capacities to complete stagnation and vegetation! On the other hand, they affirm that capitalism is opening up unlimited areas for technical progress and furthermore, that it is "more effective" in this regard than socialism. Incidentally in the last year or two affirmations of this kind have been strongly voiced in connection with such very evident achievements of Soviet science, technology, and industry as the new artificial earth satellites and the launching of the Soviet cosmic rocket which became the first artificial planet of the solar system. But in any case both of the general statements by the bourgeois opponents of Marxism represent a double deceit.

First of all it is foolish to attribute to Marxism the notorious theory of the embolism of productive capacities, which Marxists have always rejected and continue to reject. And it is just as foolish to attribute to present-day capitalism a capacity for unobstructed and unlimited technical progress at a time when the bourgeois system is breaking up and distorting productive capacities, putting ever new barriers and stumbling blocks in the path of this development, and engendering ever deeper contradictions between the advancing productive forces and the narrow restrictions of the production relations of capitalism.

Marxism has never maintained that capitalism inevitably, or under no conditions, could not achieve one kind of technical progress or another, or realize a given concrete achievement of modern science. Experience shows that in many cases the technology of the capitalist countries moves forward and that sometimes rather progressive shifts are made in the production technology of several branches. It is well known that Soviet citizens have never been opposed to utilizing the technical achievements and experience of the capitalist countries. This utilization is taking place under present day conditions, when Soviet science has firmly occupied leading positions in the world. The Soviet Union has repeatedly emphasized the fact that it is interested in developing economic relations with the capitalist countries on a basis of mutual advantage -- especially in the expansion of trade relations, which would make it possible, in particular, to import specific types of machinery and equipment with a view to accelerating technical progress in our national economy. At the same time it is very well known that the reluctance of the ruling circles of the capitalist countries to expand trade relations with the socialist countries cannot prevent the latter countries from confidently and rapidly moving ahead.

So far as the outlook for technical progress under capitalism is concerned, it must not be forgotten that (as is well known) feasibility or unfeasibility is demonstrated only by experience, and

that attempts at a priori affirmation run counter to the very nature of Marxism as a science. But Marxism, on the basis of a scientific analysis of present-day capitalist society exposes irrefutably those unsolved contradictions which obstruct the development of productive capacities. These contradictions do not testify to the "impossibility" of any development in technology whatsoever, but they do reveal "another glaring fact which indicates that capitalism is doomed historically.

The fact is that the internal laws of development of modern technology conflict in an irreconcilable manner with the capitalist system of economy. (In April 1959, at a conference held in Washington by the leaders of the trade union organizations, the American Federation of Labor and the Congress of Industrial Organizations (AFL -- CIO) the American trade union official Walter Reuther said: "Today we find ourselves in conflict with technology." And in a recently published book, "Automation and Social Progress," the British scientist S. Lilly arrived at the conclusion that "Capitalism is not an appropriate system for utilizing the benefits of contemporary advanced technology, and the even more advanced technology of the future," and that "In the final analysis there is no other possible path into the future than to convert the entire economic system into a socialist system.") This is born out by many incontrovertible facts which are also recognized by the ideologues of the bourgeoisie -- who, however, prefer to close their eyes to the real significance of these facts. The peaceful use of atomic energy encounters resistance, on the one hand, from powerful merchants of death (the nuclear armaments trusts), and on the other hand by the monopolistic fuel-power industry. Production automation is effected very unevenly and jerkily. Moreover even this disproportionate development of automation is creating a well-founded feeling of alarm in the ranks of the working class, which sees that (for example in the United States) it is leading to an increase in chronic unemployment, dooming millions to deprivation and suffering. (At the unemployment conference in Washington, where all of the speakers were exponents of the capitalist system, the following eloquent facts were cited. At the present time the United States has about five million completely unemployed persons, and 2.5 million employed for only part of the working week, whereas industrial production has reached 95 percent of the pre-crisis level. The growth of production has been attained exclusively through increasing the output of employed workers by means of automation. In the last five years chronic unemployment and the underloading of enterprises has resulted in a loss of 150 billion dollars in the gross national product, or about 3,000 dollars for each American family. In his speech at the conference, George Meany, president of the AFL-CIO was obliged to admit that even if five million

persons succeeded in finding employment during the next year, the United States would still have three million unemployed; during the current year two million workers will be discharged as a result of automation, and one million young persons will have to seek work. The following statement is typical of Meany, who is known for his devotion to "the American way of life" and his enity to communism: I am not talking now about full employment but merely about a relatively healthy level of employment." And yet not very long ago the chimera of "full employment" occupied a very central place in the arsenal of the propagandists for "the American way of life." From this we can see what automation has wrought!) The application of modern computer technology means that a Damocletian sword is suspended above the heads of office workers at many levels. Technical progress is aggravating the disproportions between branches of the economy, and the unevenness in the development of individual component parts of the capitalist of world economy. Finally, last but by no means least, the basic contradiction of capitalism is being even more aggravated; and this fact is manifested in recessions, curtailment of sales, chronic depressions in articular branches and economic regions, and an increase in the internal and external complications of present day capitalism.

In the light of these facts (and they could be multiplied) tremendous importance attaches to the fact that socialism is opening up the widest possible area for the development of productive capacities. This represents the most porfound objective basis for the rapid development of material production under socialism -- a rate of development unprecedented and inconceivable in the capitalist economy. This possibility for rapid growth which is built into the socialist system, is converted into reality not by a process of osmosis, but only by means of great efforts and a stubborn struggle for the implementation of the advantages of socialism.

It would be a crude oversimplification to affirm that technical progress under socialism can be achieved by a kind of osmosis without a struggle, without overcoming the elements of fossilization and conservatism. In February 1959, addressing the workers of the Stalinogorsk Chemical Combine, Comrade N. S. Khrushchev said: "It is important for us not only to increase the activeness of our specialists, but to clear a broad path for the implementation of their proposals. Our scientists and engineers have made a great many useful suggestions in the field of chemistry. But to promote a valuable suggestion and put in into practice is sometimes difficult. Because of the bureaucratism and conservatism of certain workers, it is necessary to expend a good deal of energy. We must break up these bureaucratic obstructions in the path of that which is new and progressive, and we are obligatorily breaking them up!"

In the socialist society technical progress encounters obstacles in the form of fossilization, routine, and red tape. It clears a path for itself, breaking up these obstacles. However, it is important to see the basic radical difference between those obstacles to the progress of technology under capitalism, and the obstacles which may arise under socialism. In the first case it is a question of obstacles caused by the inviolable, objective laws of modern capitalism, and in the latter case of difficulties due to purely subjective factors which have been completely eliminated in the socialist society. It is quite obvious that these phenomena are of a basically different order, and that they actually have nothing in common.

Does this mean that under socialism there are no objective limitations in the area of developing the productive forces of society? That this process depends exclusively upon the subjective factor? Obviously, no. The objective limitations at each stage are a result of the level of social wealth attained, the scope of production, the amount of the national income -- in a word, the volume of those resources which society can direct toward the goal of expanded reproduction. It should be noted however that at the given level of development of productive forces, of the productivity of social labor and, consequently at the given level of social wealth, the rate of further development does not represent a previously established value. On the contrary, it depends to a large extent upon skill in the utilization of material and labor resources, the appropriate use of capital outlays, economic management, and many other similar factors.

The seven-year plan shows how tremendous are the reserves at the disposal of the socialist economy. As is known, over a long period of time the national income of the USSR has been divided into a consumption fund and an accumulation fund, in a ratio of about 75:25. However the fourth of the national income going for purposes of accumulation and expanded reproduction, has been utilized with ever increasing effectiveness as a result of the policy of following the most progressive trends in the development of production. Thus in the current seven-year period savings merely from replacing coal by natural gas and petroleum fuels will amount to more than 125 billion rubles. The introduction of electric and diesel locomotives will make it possible during the seven-year period to save 400 million tons of coal (roughly equivalent to the total amount mined in the country in 1957) and to reduce operating expenses by 45 billion rubles. The electrification of all kolkhozes and sovkhoses will make it possible to cut production costs by 19 billion rubles. One of the most remarkable features of the socialist economy is the continuing solicitude of millions of workers for the interests of social production, which results in the discovery of ever new sources of saving. Thus the collective of builders of the

Stalingradskaya Hydroelectric Power Station entering into socialist competition for fulfilling the seven-year plan ahead of schedule, resolved to save 2.5 billion rubles on the construction of the hydraulic complex as compared with the Volga GES [Hydroelectric power station]. The estimated cost of the Bratskaya and Krasnoyarskaya GES's will be reduced by more than two billion rubles. Technical plans have been worked out which make it possible to reduce the length of time required to construct thermoelectric power stations by an average of one year to 18 months, and hydraulic stations by 18 months to two years.

The Communist Party has always rejected the petty minded wisdom expressed in the proverb, "Cut your coat according to your cloth." On the contrary, under conditions of incredible poverty and ruin the party led the Soviet people in a death struggle against technic-economic backwardness, arming it with a realistic and yet daring program for occupying the heights and economic power. Today the party has armed the Soviet people with a profoundly conceived and all-embracing program for building the material-technical base of the most perfect and just social system: communism. And there can be no doubt but that this program will be successfully fulfilled.