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X-RAY LASER: A WEAPON OR BLUFF

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The Livermore National Laboratory is one of the two US centres developing and producing nuclear and thermonuclear weapons. In the past few months it has been mentioned in the American press fairly frequently in view of several peculiar circumstances. On the request of a group of Congressmen led by Representative George Brown (Democrat, California) a government-sponsored investigation has begun at the Livermore National Laboratory.

The investigation conducted by officials from the General Accounting Office is aimed primarily at providing the answer to the following sensitive question: to what extent do the numerous progress reports on the development of a nuclear-pumped X-ray laser, reports communicated to the Administration, including the US President himself, by two Livermore researchers--Edward Teller and Lowell Wood, correspond to the actual state of affairs?

There is hardly any need for a detailed introduction of Edward Teller. He is one of the founders of the Livermore National Laboratory and its honorary Vice-President. The mass media has dubbed him "father of the hydrogen bomb". It is an open secret that Teller has a substantial influence on President Reagan not only in purely scientific matters. Said one White House staffer: "Teller is one of the group of science advisers to the President--a fact that speaks for itself."

Lowell Wood is a protege of Edward Teller. At the Livermore National Laboratory he heads a special division

it) was Roy Woodruff, the former supervisor of nuclear weapon development programmes.

How did it all happen? Let us try and reconstruct the course of events.

According to Woodruff, he realised for the first time that false information about the work carried out under his supervision was being fed to the highest echelons of the Administration back in December 1983. By accident Woodruff read a copy of the letter addressed by Teller to George Keyworth, science adviser to the US President. The letter said, among other things, that work on the X-ray laser was already past the research phase and that the time was right to go into the next phase--a phase of experimentation and development which meant, by the way, a sharp increase in funding. Woodruff asked Roger Batzel, the-then Director of the Livermore National Laboratory, to deny Teller's report. However, Batzel refused to do that.

The situation repeated itself one year later. That time reports were addressed to Paul Nitze, Special Administration Adviser on arms control matters, and to Robert McFarlane, Assistant to the President for national security affairs. It has become known that in his letters Teller promised to have weapons based on the X-ray laser ready by 1990. And again Woodruff was banned from making any adjustments in the contents.

In the spring of 1985 Lowell Wood alleged, in a memorandum he prepared for CIA director William Casey, that the outcome of the US-Soviet technological race to develop X-ray laser would be decisive for the future of this planet. As Roy Woodruff asserts now, the memorandum deliberately upped the results of the US underground tests of an X-ray nuclear pumped laser.

Soon Lowell Wood asked Gen. James Abrahamson, who is in charge of the SDI project, to organise an X-ray laser demonstration test in Nevada to impress the world with the level of US technological supremacy. Gen. Abrahamson wanted to

programme without Congress approval (almost after every Edward Teller's visit to President Reagan, the latter endorsed tens of millions of dollars in extra funds for the Livermore national laboratory).

Late last year, the University of California ruled that Woodruff's transfer to a lower-paid job was illegal. He was immediately offered the post of the head of the programme to check on compliance with arms control agreements plus pay compensation for the previous period.

So, is that a happy ending? Of course, Woodruff has been reinstated, but the numerous questions which were raised remain unanswered.

For one thing, the future of the X-ray laser programme is at stake. Following the decision to launch a GAO inquiry, many employees who did X-ray laser research at Livermore or worked in the field previously, spoke in support of Woodruff, citing fresh evidence of deliberate misinterpretation of research efforts at Livermore.

Livermore physicist Ray Kidder, who began work on X-ray laser at Teller's invitation in 1983, wrote a letter to Congressman George Brown. One year later he wrote a memo for Teller, saying that it would be very difficult to develop a weapon based on X-ray laser, while possible Soviet counter-measures might make such weapon, even if it were built, totally ineffective. Kidder's co-worker Albert Latter agreed with him and told newsmen that it was still unclear whether an X-ray laser would work at all, let alone the possibility of its military use. Most doubts concerned the search and precision guidance systems, without which X-ray laser could not be considered a weapon, Latter said.

Congressman George Brown also got a call from laser physicist Lowell Morgan, who worked at the Livermore Laboratory from 1981 to 1985. He pointed to the fact that calculation data and computer estimates were quite often taken as the actual results of underground testing, but the organisations where progress reports were sent most certainly

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Defence Department is exploiting the stamp of secrecy to prevent publication of material that is likely to make major SDI elements appear in a bad light -- which, evidently, would be only right.

(Izvestia, August 30. In full.)

VOOSO-880826DR41

THE OZONE HOLE AGAIN

Prof. N.Makarov, Doctor of Chemistry

There has been so much talk about the ozone layer because it plays an important role in protecting all living things, including people, from ultraviolet irradiation. People are increasingly worried by the appearance of holes in that layer which are allegedly growing in size.

The appearance of holes is linked with anthropogenic activity as a result of which such reducing gases as freon reach the upper layers of the atmosphere and react with ozone. Some countries have banned the production of aerosol containers. Everything would seem logical from the point of view of chemical laws and aerodynamics of gases if those holes were situated above industrially developed regions such as Europe and America. Instead they were found on the Poles. That is the first hitch.

Furthermore, the hole above the Antarctic is bigger than that above the Arctic, although the northern hemisphere is more developed industrially. And finally, holes in gaseous media and in mobile media in general, particularly around a revolving planet, can be created by a permanent powerful directed process, something that anthropogenic activities cannot ensure. An insignificant amount of man-produced reducing gases is immediately oxidized in the air.

The atmosphere basically consists of 20 per cent of oxygen and 80 per cent of nitrogen. Other gases, including ozone, account for a fraction of a per cent. The amount of oxygen depends on the season because it is produced by plants.

The Earth is a big magnet and its magnetic poles almost coincide with geographic ones. So one might say that magnetic force lines connect the Arctic and the Antarctic passing through the upper layers of the atmosphere. Oxygen reacts with magnetic force lines and moves from the Arctic to the

VONT1-880510DR46

ACADEMICIAN SAGDEYEV: WHERE WE LOST PACE

Science personifies all things new: the endless drive forward in the comprehension of the world around us and of the society in which we are living. The evolution of science gives us a model of a democratic organism in a process of continuous renewal, destruction of the old stereotypes, dramatic confrontation of ideas and eternal quest.

To a large extent, science is a product of the social conditions in which it has developed. The recent years have left deep and far from healed scars on that complex and easily-hurt organism. Soviet science has come to this stage with one of the world's largest armies of researchers but, unfortunately, with a modest record of achievements worthy of the world treasury of knowledge.

This primarily applies to the achievements in the so-called fundamental science. We have long been used to castigating ourselves for being unable to translate effectively the results of fundamental research into practice. Today, we have started figuring out what hampers applied science and even begun to refine the mechanism of interaction between science and practice.

It is high time we sorted out honestly and objectively the causes of the crisis experienced by fundamental science without which applied research is impossible.

By creating an intellectual start for future applications (often unexpected for the researchers themselves), fundamental studies actually become a real means of production.

So where did we lose the pace, giving up the leading positions in some directions and even dropping to the bottom positions in others?

The examples are readily available. In the exploration of the microcosm, of the dozen so-called fundamental particles

- the model which was so effectively implemented years ago by Pyotr Kapitsa and Nikolai Semenov. In a small and compact institute with a staff of 100 to 200, bureaucratic tradeoffs were confined to a minimum, while the director was not just a scientific leader but also a tutor for young researchers.

In the endless confusion of organizational and administrative chores, the managers of the hypertrophied research institutes of today have less time not only for passing on their knowledge to the next generation, but even for their own scientific pursuits (if only at the level of hobbies). We still have not fully realized that mammoth institutes have outlived their use as the main production cell in science but have failed to pass on that function with the corresponding research and organizational powers to the departments and laboratories whose chiefs have long grown out of their adolescent status.

To resist the bureaucratization of science and the transition of power to professional administrators, scientists must themselves tackle various administrative chores. I know many examples where talented scientists under the growing load of administrative tasks eventually lost their creative potential and, in the long run, proved unable to tell a really good idea from apparent hocus-pocus.

All that has certainly affected the creative atmosphere in many research collectives. Scientific seminars have lost much of their high creative tone. There has been a decline in the intensity of scientific contacts (even within the country) which are vital as air. To a certain extent, the genuine scale of values has been eroded.

The loss of objective criteria in science leads to levelling in research. This has given rise to new forms of evaluation of scientific achievements, alien to the traditions and the logic of the development of science, like the so-called "registration of scientific discoveries". But can a certificate of discovery or another piece of paper issued by a bureaucratic agency give satisfaction to a genuine scientist?

science sometimes treat forecasting as a nagging extra task. It is only later that we start worrying and retailoring the already approved plans under the pressure of unforeseen circumstances.

Of course, there will always be room in science for surprises and unexpected discoveries. That is one of the beautiful things about it. However, rational distribution of finances and investment of material resources into the most promising spheres will certainly increase the number of such pleasant surprises. As it is, for a long time fundamental research did not enjoy the privileges which have always existed for applied sciences. According to out-dated economic terms, fundamental sciences could not be included into the A group of industries turning out means of production. That is why they were not treated as a priority sphere, with all the ensuing consequences.

New thinking taking into consideration the relations between the different types and forms of scientific activities inevitably leads us to the conclusion that the establishment of an intellectual start for future applications and practical developments is in fact the creation of means of production in its most advanced form. Not surprisingly, Japan which has accomplished a revolutionary breakthrough in technology and industrial production organization - allegedly through skilful use of others' patents and very effective work organization - is reorienting today its own fundamental research to priority development.

And are we prepared for a truly comprehensive approach to the planning of large-scale programmes in science and technology?

In many cases, the Academy of Sciences or the headquarters of big science acts as a modest partner of industries and other sectors of the national economy, because they have a much stronger production capacity and a more advanced technological base.

The departmental barriers lead to a situation where the

discovery of the supernova's X-ray radiation with the observatory mounted on the tiny Japanese automatic probe Ginga.

Science planning also presupposes proper distribution of funds among the different expenditure items. For example, if we channelled all funds into unique test units for however crucial investigations but forgot about diagnostic instruments and data-processing equipment, such investments would be of no avail. One would think that this must be obvious to everyone, but something very close to that happened some time ago with the unique six-metre optical telescope in the North Caucasus.

Speaking of a shortage of automation facilities and computers today is a real shame, but that's how it is with us.

Extensive use of computers in routine laboratory work increases the effectiveness of lab research about tenfold and makes it possible to conduct such investigations and analyses which are impossible where traditional methods are used.

In terms of instrument and computer availability, the army of our researchers and engineers resembles a posse armed with slings and cross-bows. Alas, with the existing shortage there is no question of profitable independent designing and production of non-serial computers which, even though, unprofitable, are a must even for institutes of the Academy of Sciences.

If we had not started in advance to design our own special computers at the Institute of Space Studies for processing the results of the rendezvous of the VEGA probes with Halley's comet, we would have never matched the computer team of the European probe Jotto which passed the comet a few weeks later.

Advancing to leading positions in world science and staying there is practically impossible without proper international links. Global interdependence is particularly obvious in the life and work of the international scientific community.

Looking back at the road behind, I cannot imagine my

WORLD LABORATORY'S SOVIET BRANCH OPENED

The Soviet branch of the World Laboratory, a new form of international cooperation bringing together scientists from different countries jointly to carry out peaceful research programs in a wide variety of fields, was opened ceremonially at the Presidium of the USSR Academy of Sciences on February 28.

The ceremony was attended by Eduard Shevardnadze, a member of the Political Bureau of the CPSU Central Committee and Foreign Minister of the USSR, and Italian Foreign Minister Giulio Andreotti who had arrived in Moscow for the purpose at the invitation of the Soviet government. Those present also included Gury Marchuk, president of the Soviet Academy of Sciences, prominent Soviet and Italian scientists and heads of a number of Soviet ministries and departments.

The World Laboratory's Soviet branch at the first stage of its activities will be preoccupied with Soviet-Italian scientific cooperation projects in such fields as the information science, biology, physics and study aids. The projects are listed in an agreement on international cooperation in science and technology under the aegis of the World Laboratory, which was signed at the ceremony by Yevgeny Velikhov, leader of the World Laboratory's Soviet branch and Vice-President of the Soviet Academy of Sciences, and professor Antonio Zichichi, leader of the World Laboratory's Italian part.

(Pravda, February 28. In full.)

VONTO-880406DR43

GENETIC ENGINEERING AND ETHICS

Ye. Manucharova talks to Alexander Spirin

Until the first atomic bomb went off, mankind had pegged great hopes on science. Since then, the higher the accomplishments of science, the greater the anxiety with which people look at it.

So what should the personal position of a scientist be today? Also, his relationship with history, and responsibility to mankind?

All these things have been discussed with Academician Alexander Spirin, Director of the Institute of Protein and a member of the Presidium of the USSR Academy of Sciences. He is a molecular biologist and biochemist. In other words, he is a representative of the science for which man, his organism and the living cell are all information systems whose programmes are yet to be read.

Before proceeding to questions about the new problems created by this approach, one must be reminded of its practical application: i.e. of biotechnologies. They have helped organize the production of growth hormones and such crucial drugs as insulin, vaccines and interferon, to name a few. Genetic therapy, when it directly affects the heredity mechanism, can correct certain congenital defects in the organism. In crop farming the new methods help promptly breed new highly-productive, hardy and pest-resistant varieties of plants. It will be eventually possible in principle to reorient world industry to new sources of energy and raw materials. That will yield vast quantities of cheap plastics, solvents, dyes, fertilizers and chemicals. But does this apparent omnipotence of science really work only for the good?

QUESTION: There has been much talk in the world recently about the new American project, "the genome of man". In our

not find an exact repetition of the American plan possible for our country. The Americans will be the first to complete it, they will market its results and will gain certain commercial benefits thereby. That, however, will not last long, for a deciphered genome is not an instrument or reagent but a sort of text, and it cannot be kept secret forever. Soon it will become available to all countries. So why spend all that money on the same but belated, even though independent, results?

It is to be hoped that the project will not be approved without careful consideration. As for ourselves, we would do best to work out our own national project, but an asymmetrical, cheaper and more effective one. I think that the time when countries had to duplicate each other's research and when each state procured new knowledge only for itself is gone now. Besides, I have always been for original ideas and for our own approaches or, in other words, for Science.

QUESTION: But there must surely be a purpose to such an expensive project! What's the point in knowing about the gene of a particular race, for example? Is it of no value at all or even harmful?

ANSWER: No knowledge can be harmful per se, but only its application. I just think that we should not be particularly hopeful or apprehensive about this deciphering of the human genome. The project may indeed prove of some value for practice and science, but only some. Even when the genome is deciphered, we will not know a whole lot more about the human essence than now.

QUESTION: Are you sure that knowledge cannot be harmful? Why then do doctors take the Hippocratic oath, swearing to do no harm? Should we not think of a similar oath for natural scientists. Could there already be moral boundaries in scientific research?

ANSWER: I don't think that moral standards should be brought into science. The objective of science is the search for the truth, and the truth cannot be immoral. But, of course, the methods of procuring and using scientific

horrid: frightful; terrible; (colloq.) disagreeable.
chimera (kay'miyra): (Gk myth) monster with a lion's head;
horrible creature of the imagination.
virulent: (of poison) strong; deadly

ANSWER: Mankind has more than enough knowledge for evil uses, and that means on the molecular level, too. The creation of horrid chimeras by deliberately joining disparate (strunde farklı) genes in one organism is quite realistic. Thereby it is possible to breed chimeral virulent bacteria, super-aggressive animals (dogs or bees), halfhumans-halfapes and so on.

The avalanche of such projects must be stopped. But how? We might start with an appeal to all governments in the world: an appeal to humanism, dignity, reason and conscience of all people. If mankind wants to survive, it will heed such urgent warnings. It is imperative to impose the strictest possible international bans on antihuman applications of knowledge, and this is where we will badly need openness on a global scale. But mankind will never stop seeking new truths about life, although today it does not always do it in the best possible way.

QUESTION: In other words, there are still cases where research projects presuppose immoral applications from the very start...

ANSWER: It is good you have raised this subject. This is what we must avoid at all costs and what must be controlled in the choice of projects bearing on man. If it is stated in the "man's genome" project that it will help accomplish directional changes in the genome and, consequently, in human nature itself, such a goal will apparently be immoral. I think that ethics prohibits us from altering human nature, if only because we do not know to what consequences that will lead in a few generations or even in one. New knowledge about man's heredity (ar) apparatus must be tested and used only for good purposes.

QUESTION: Excuse me, but "testing" is yet another grave problem of pioneer research. For example, in heart transplants actual application of the method had started long before its testing was completed. Do you think that the first operations, almost certain to be unsuccessful, were morally justified?

ANSWER: The first patients, who risked living (if only

death. It is a kind of all-permissiveness of supermen.

ANSWER: The method of analogies is not necessarily the method of truth. Besides, you have strongly overrated the potential of science. The kind of cloning which you fear does not exist yet. Man is not a carrot. Not everything is that simple or straightforward. The main thing is to believe in the force of reason and morality. Science is not a servant but a part of national and global culture and of a system of values that includes moral values. Science like art is a creative business, and like art it ennobles man.

(Izvestia, April 4. Abridged.)

VONT1-880621DR35

BREAKTHROUGH STRATEGY

Academician D.Gvishiani, Academician V.Mikhalevich,
Professor V.Rakitov and Academician V.Semenikhin

Development of Informatics - a Pressing Task

In our view, intensive and all-round development of informatics in Soviet society is a major trend of perestroika in the national economy. Its essence lies in the maximal possible acceleration of the production, dissemination and introduction of new data and knowledge in industry and agriculture, economic management and culture, everyday life and politics. Establishment of widely-accessible data banks on an unprecedented scale is the main specific feature of this process.

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In the past the might of states was determined by the number and training of soldiers, availability of a gold fund, millions of tons of steel or billions of kilowatt-hours of energy produced. Information now becomes a major indicator of the level of scientific development and economic and defence might of a state. The larger the output of information and the higher its quality the higher the rate of its introduction in the national economy, the higher the living standards of the people and the greater a country's economic and political weight.

Broad accessibility and openness of the banks of information and knowledge is the most important condition for the development of informatics in society, for its further democratisation, and for the development of glasnost. This enables the population to actively use the latest information and knowledge in its production, scientific, invention and political activities and personal life.

services and everyday-life information in big cities and industrial zones, which would be developed and replenished promptly, are, above all, needed for this purpose. Using telephone communication and ordinary TV sets which are available in almost every family, it would be possible to obtain a sizeable part of information, including replies to inquiries and quick and competent consultation, right on a TV screen.

With the help of the same system and using the possibilities of television in combination with the centres of information and information services, it is possible to organise accelerated training and retraining of personnel and to sharply increase possibilities for self-education, which is of paramount importance in the context of rapid scientific and technical progress. This has long been done in a number of countries.

Computerisation of all financial settlements at saving banks, shops, etc. would be of great help to the population.

The third sphere concerns the problems of health services and social maintenance. Along with the development of informatics in professional medicine linked with the development of sophisticated and costly diagnostics expert systems, medical consultations, which could be given to the population by means of the telephone and television communication systems, acquire increasing importance all over the world, our country included.

This calls for computerised health care information centres to be used any time direct contact with the physician is impossible. A computerised social security service would help register and care for the incapacitated, single persons, ill and elderly people.

The fourth field concerns informatics in education and science. It has been estimated that today a polytechnic graduate should have the volume of knowledge tripling the figure for 20 years ago. To keep pace with developments, students should learn more and faster. Computers should be

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DO WE HAVE TO FORCE THE JINNI BACK INTO THE BOTTLE?

The Impact of the Scientific and Technological Revolution

Professor Harry Nick
Doctor of Economics; Research Programme Chief at the Political Economy Institute of the Academy of Social Sciences under the SUPG Central Committee (GDR)

Next to the issue of preserving peace, people are now particularly concerned about the way the scientific and technological revolution is changing their lives, about the demands it makes on their knowledge, abilities, behaviour and motivation, and about the opportunities it offers for man's creative endeavor, for facilitating and improving human existence. The existing social systems are increasingly judged by their ability to put the advances of science / and technology at the service of man. All these issues are moving to the forefront of today's ideological struggle.

The Object of Debate

It is not surprising that ideas keep clashing. The scientific and technological revolution is rapidly expanding and gaining depth. Reflections on its social impact are becoming ever more widespread. This impact is an object of intensive ideological debate between Marxists and adherents of the bourgeois worldview. The scientific and technological revolution is getting an ever stronger grip on our attention primarily due to the fact that its current content and its possible effects in the foreseeable future are becoming clearer.

One can no longer doubt that the scientific and technological revolution which began in the mid-twentieth century has given rise to extremely profound changes in the productive forces. The scope and depth of its influence is determined above all by two factors. First, it is a universal revolution in the objective material conditions of society's existence and development, a revolution that draws all spheres of activity, some of them for the first time ever, into man's interrelationship with nature --outer space, the microstructures of living matter, and the crystalline structure of solids. All (four) objective elements of the productive forces—means of labour, objects of labour, technoligies and energy sources--undergo revolutionary change; both main types of labour (manual and intellectual) have become open to widespread application of technology.

This universal character of the scientific and technological revolution is matched by the scale of its in-depth impact. This means that, second, people now have an unprecedented opportunity to transform the fundamental objective material conditions of their existence and development. Hence the global problems in which all mankind is the subject and the entire world--and, again, all mankind--the object. We must become aware of these fundamental realities--primarily, of the fact that the scientific and technological revolution has, for the first time in history, made the annihilation of civilisation a practical possibility.

The balance of nature and the cycle of natural process, which took millions of years to take shape, are very vulnerable. Purposeful

efforts are needed to preserve them. In another unprecedented development, man can now manipulates genes to produce new species of plants and organisms--species not born of Mother Nature. Besides, it is also a fundamental objective fact that computers have begun to be used on a large scale in the field of intellectual activities. This expands the scope of intellectual work and exerts a major influence on the growth of labour productivity, on changes in the content and conditions of labour, and on the material conditions shaping the way of life.

Massive introduction of scientific and technological advances into the economy is radically changing the nature of labour performed by a rapidly increasing spectrum of people. In 1990, 500,000 jobs in the GDR will be included in a CAD/CAM network,[1] as envisioned in the decisions of the 11th SUPG Congress.

The changes in the means of production that are occurring or expected to occur fascinate people and awaken their imagination. Hosts of bourgeois technocratic philosophers speak at length, and often emotionally, about all sorts of fears and anxieties, and dress them in pseudoscientific garb, citing the latest trends in the development of the productive forces. These are in fact attempts to present age-old bourgeois myths in modern form. In his time, Karl Marx noted critically that such myths "result in endowing material forces with intellectual life, and in stultifying human life into a material force".[2]

The ideological controversy centres above all on two sets of questions. One of them relates to the <u>interconnection between scientific and technological progress and economic growth</u> and

their significance for improving the human condition. All who are incensed by our economic policy, output growth, economic achievements and socialism in general insist that "limited growth" is in order. Allied with them are those who, facing actual difficulties that deteriorate at times of crises, believe that utter denigration of economic development is the best way to defend capitalism. Finally, they are also joined by those who, although aware of the adverse social effects produced by the scientific and technological revolution, of the fact that labour loses all meaning and the environment is destroyed under capitalism, cannot bring themselves to recognise the socio-economic causes of these maladies.

The other set of questions concerns society's ability to master the mechanics of directing technological progress. These issues reflect the fears that technology may become uncontrollable. Again and again, we are told of a sorcerer's apprentice who cannot force the jinni he has called forth back into the bottle.

The Questions Answered

Our age of far-reaching revolutionary transformations in the productive forces bears out the truth and the fruitfulness of the Marxist-Leninist worldview. It explains the significance of technology and the historical scope of the present-day scientific and technological revolution above all in the light of the working man's interests and increased labour productivity. At the same time, a theoretical summing-up of practical experien-

ce also emerges as an urgent task. Particularly valuable is that part of this experience which is now presented to the world by existing socialism, the system demonstrating clearly and palpably that a rationally organised society can put science and technology at the service of man and use them to make his life fuller. The role played by a vivid socialist example is growing rapidly.

The achievements of the GDR in all spheres of the social fabric, particularly after the Eighth Congress of the SUPG in 1971, should be credited first and foremost to the Socialist Unity Party of Germany. It worked out a correct assessment of the dimensions and significance of the scientific and technological revolution, oriented our people on its demands firmly and in time, drew up and consistently implemented an economic strategy aimed at mastering the advances of science and technology, and pursued a policy to promote them and to ensure the training of personnel. All that is reflected in our republic's economic growth. The ability of socialist society to translate economic advancement into social progress is a fundamental moral and political advantage of socialism which gives the people good reason to view high technology favourably.

Technology as a whole is an aggregate of the material means which man's labour has produced and which he uses purposefully in his interrelationship with nature so as to transform its resources into objects of consumption. With the help of technology, particularly as a result of its improvement, man is constantly overcoming the contradiction between the growth of his requirements (new ones keep cropping up, and they interact

dialectically with the satisfaction of already existing needs) and the limited opportunities for making labour more effective given the available capabilities and means.

Technological progress is the decisive factor in a dynamic development of labour productivity because man's biological labour potential has hardly changed significantly from generation to generation--take man's store of energy for performing work over long periods, or the speed and accuracy of his logic. The means of production are the decisive material basis of a special type of human evolution which occurs through the transfer of knowledge and expertise, in a dialectical interdependent relationship between economic production and the reproduction of man-made habitat.

Like labour of which it is a tool, technology is essential for the progress of the individual and of society. Marx described it as one of the 'objectified essential powers of man'.[3] Any machinery embodies, in concentrated form, the knowledge and expertise of all preceding generations. A favourable attitude of the public to technology is thus determined by a similar attitude of society to the individual. Hostility towards technology is essentially anti-humanitarian. A society's stable ability to use scientific and technological progress for the benefit of man, translate its advances into social achievements, make man's labour more productive, provide all people with useful jobs and improve the content and the conditions of labour is a touchstone of this society's humanism.

How then do we approach the question of whether steady economic growth and scientific and technological progress are necessary? The arguments cited in an attempt to interpret both these elements as something unnatural are often deduced from

comparisons with development processes in nature. But the economy has a social nature, and it operates according to completely different laws. No one denies that a tree cannot keep growing indefinitely, but that is not an economic law; an economic organism that does not grow or that grows not the way it should while having all economic resources, is sick. Technological progress, which largely determines the steady continuity of economic development, is as infinite in duration as the progress of human knowledge.

The debate over the prospects of the productive forces leaves the impression that our bourgeois opponents imply the attainment--somewhere, sometime--of a level in the satisfaction of human needs which is likely to be so high as to justify "modest" subsequent economic growth. In actual fact, this level has not been achieved anywhere--either in developed capitalist nations where many people cannot afford even basic necessities or, all the more so, in the Third World countries where thousands starve to death precisely because of inadequate economic growth. As for the socialist countries, the programmes and policies of their communist and workers' parties leave no doubt that they view substantial economic growth as essential and basic to social development. For example, that is a goal of the policy steadily pursued by the SUPG. Since the early 1970s, annual economic growth rates in our country have averaged 4.5 per cent (in terms of the annual national income increment). That is the figure we shall need in the foreseeable future so as to attain our objectives of social progress.

Talk about "limited" growth prompts one to wonder who actually advocates its "slowdown". Neither the monopolies nor the state nor the trade unions advance this as an objective. Apparently, it is the difficulties encountered by capitalist economies, particularly the "zero growth" phenomenon and even the slumps that are the real reason behind the vigorous efforts to denigrate the social role of economic development. One would also say that this explains the attempts to reappraise the role of labour--upon a closer examination, an attempted reappraisal of unemployment. The fact that capitalist society cannot get rid of a huge "reserve army of labour" has come as a bitter discovery to the more far-sighted of the bourgeois ideologists. But, given its high opinion of itself, this society naturally seeks to remove the disgraceful stigma of this social malady. Naturally, we share the attitude of the democratic forces which regard unemployment as a major social problem and work to abolish it.

Capitalist society is incapable of arriving at a rational and humanitarian approach to the scientific and technological revolution. Nonetheless, bourgeois ideologists and politicians have in recent years again turned to "optimistic" economic growth concepts and assessments of technology. In advertising these notions, the conservative reactionary quarters demand that every individual "exert more efforts" and "take care of himself"; at the same time, they defend the policy of social rollback. They keep marshalling the untenable argument that scientific and technological progress under capitalism can alleviate

social contradictions. But these claims are as divorced from reality as the thoroughly pessimistic views.

The record of the GDR and of other socialist countries proves that socialism makes it possible to master the advances of science and technology and to make people socially secure. That is also true of our future prospects. Now that the year 2000 is drawing near, we are interested in the "future of labour", mostly because we strive purposefully to use every opportunity offered by modern science and technology, particularly in key economic branches, in order / to make labour more meaningful and creative, so that it would promote the development of the individual.

No one in our country regards the rise in labour productivity with the fear, so widespread in the capitalist world, that labour will soon become socially "redundant", that ever more people will have to make do without jobs and to find some kind of substitute raison d'etre. Today, it is hardly worthwhile debating the rates of economic growth or the duration of the workweek 20, 30 or a hundred years from now. We are convinced, however, that a meaningful life is impossible without meaningful labour: it is socially useful activity that enables man to grasp what he actually is and what he can accomplish. In a rationally organised society, the sources of useful jobs for all who want to work will never dry up. Stable and rapid economic growth vigorously backed by the scientific and technological revolution provides a reliable material basis for the development of socialist society in all fields. Social-

ism will make life not only more enjoyable but also more secure.

Solving Problems Through Progress

The development of modern technology makes it necessary to find ways of anticipating its possible effects, including its undesirable consequences. One must say that progress itself offers new opportunities for anticipating dangers and preventing them by practical action. The ability of electronic systems to monitor their own operation objectively and automatically and to identify and correct the mistakes made is one such opportunity. The reality of computer-aided control is rising thanks to the rapidly developing sensor equipment, control and measurement instruments and powerful microprocessors. It would therefore be a mistake to claim that as it advances, technology is becoming increasingly anonymous, less understandable and more difficult to manage as far as man is concerned. Naturally, such cases do occur; still, it is the opposite trend which is dominant. And although man's senses cannot follow the operation of microchips (which constitute the broadening base of technological progress), technology itself lends us a helping hand.

Modern measurement equipment, computers and displays are making processes that escape our sensory perception visible to us. The development of education and training enables the worker to delve into technological processes and theoretically deduce their "inner patterns". That is important not only for practical occupational activities but also for enabling the worker to grasp the meaning and rationale of his job. The combination of

scientific and technological progress with improvements in the system of education and training highlights a major advantage of socialism. Young men and women in the GDR have long been trained for an occupation during their ten years of school. Twenty-five per cent of those who start their careers have received a higher or a specialised education. The share of workers with no or only basic training diminished from 41 per cent in 1970 to 15 per cent in 1985 and will be 10 per cent in 1990.

True, technology is growing increasingly complicated. At the same time, its progress provides us with the ways and means of ensuring that the interaction between man and machine would not be as complicated for the operator as the machine itself but, on the contrary, would become more interesting and diversified. Improvements in informatics and communications point unmistakably to a tred aimed at facilitating man's contact with automated systems, effecting it with the help of a natural language (at first in writing and later orally), and increasing the scope of operations which can be performed without recourse to a computer language (today, the number of workers who have to master a computer language is growing). All this expands the sphere of creative labour and makes it necessary to follow technological rules more closely. High technology can indeed be designed to suit human parameters.

Numerous facts confirm that technological progress itself creates opportunities for tackling the problems that result from it. According to Marx, the development and growth of contradictions is accompanied by the emergence of objective conditions for overcoming them. Naturally, they cannot be overcome at once. As the productive forces develop, an aggravation of

contradictions may occur if they are not dealt with dialectically. That is why all sorts of fears are voiced with regard to their consequences--particularly when only the phase of obvious growth and exacerbation of contradictions is singled out of evolutionary processes, when the trends dominating this phase are oversimplified, "summed up" and projected into the future, and when no effort is made to anticipate a qualitative breakthrough in the course of development.

For example, there was much talk in the 1950s and early 1960s about an information crisis. Fears were expressed that the rate at which new knowledge was accumulated was fast outstripping our ability to systematically arrange and use the available store of knowledge, that its burden was gaining weight and that mankind would be unable to bear it. Further progress of science was called into question. These assertions were backed by references to actual facts, such as the rapid growth of discoveries and inventions. Proponents of this view said that it was easier to invent something anew than to try and find out whether the invention in question had already been recorded somewhere. These fears are no longer justified. Progress in informatics and communications has produced a completely different and even opposite situation: access to knowledge has become easier, faster and less expensive.

The arguments and the methods used in connection with today's environmental problems often resemble those which were advanced with regard to the information crisis. In fact, a radical reappraisal of our relationship with nature (especially of the

ways natural resources are used) is in order. An increase in output is not necessarily tied inexorably to an increase in the extraction and processing of minerals. The problem should be solved through the development of / new technologies, through advanced methods of utilising / industrial waste and through the creation of closed, wasteless systems. Environmental protection should be made progressively profitable, and economic growth should be coupled with environmental improvement through thrifty, not wasteful methods. But even in this case the expenditures necessary for environmental protection will remain sizable and will not produce a direct financial effect. Decisive results will be achieved by a switch from extensive processing of natural resources to intensive use of the natural potential, a major factor in the intensification of the entire economic reproduction process. For many years now, economic growth in the GDR has been based on savings in material resources. Economic growth is secured without any increase in the consumption of major energy sources or raw materials.

Scientific and technological progress creates growing opportunities for resource-saving economic development and utilisation of waste. Suffice it to mention the promising prospects of biotechnology. Many signs indicate that a hundred years into the future our rivers will again be as clean as they were a hundred years ago. Like the "industrial age" (periods of relatively high economic growth rates) and the subsequent "post-industrial society" with its slowdown in socio-economic progress, the aggravation of the environmental situation will be seen as an

"episode" of history--naturally, if science and technology are used rationally and if the huge resources currently squandered on the arms race are channelled into ensuring resource-saving and environmentally safe economic development. Cooperation of countries with different social systems is essential for the solution of global problems.

In the final analysis, the deadly threat mankind is now facing makes it imperative to prevent the runaway pursuit of profit from affecting the course of the scientific and technological revolution, particularly in arms manufacture. In order to improve the quality of life, the same should be accomplished in biotechnology, informatics and generally in all spheres of human activity. Changes in working conditions are also important.

It follows that it is not simply a "different" technology but a new society which can put the progressively developing productive forces fully at the service of man and prevent their transformation into what Marx called "destructive forces". The thing the scientific and technological revolution has exposed is not the "obsolescence of man" but the obsolescence of the social system which provides the social breeding ground for war and is unable to cope with the Janus-faced scientific and technological revolution.

[1] CAD/CAM stands for "computer-aided design" and "computer--aided manufacturing".--Ed.

[2] Karl Marx and Frederick Engels, Selected Works in three volumes, Vol. One, p. 500.

[3] See Marx, Engels, Collected Works, Vol. 3, p. 302.

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EXCHANGE OF VIEWS, DISCUSSION

THE DOUBLE FACE OF CAPITALIST MODERNISATION

Scientific and technical progress is having an ever more pronounced influence on the development of the productive forces in the industrialised capitalist countries, causing deep changes in every sphere of economic and social life, and in the class relations of the capitalist society. What are the consequences of this process for the working class?

An international symposium on "Scientific and Technical Progress and the Working Class of the Industrialised Capitalist Countries (1980)" was held in Frankfort on the Main by WMR together with the Institute of Marxist Studies (IMSF) of the FRG. It was attended by Robin Williams and Bert Ramelson (CP Great Britain), Zenon Zorzovilis (CP Greece), Esben Andersen (CP Denmark), William Somerset (CP Ireland), William Stewart (CP Canada), George Jackson (Socialist Unity Party of New Zealand), Carlos Aboim Ingles (Portuguese CP), John Pittman (CPUSA), Gerd Deumlich, Johanna Hund, Helmuth Lange, Lothar Peter and Stephan Voets (German CP), Jean Spielmann (Swiss Party of Labour), Urban Herlitz (Left Party--Communists of Sweden), Heinz Jung, Andre Leisewitz, Jorg Goldberg, Eberhard Dahne, Jurgen Reusch and Klaus Pickshaus (IMSF).

Below is a summary of the discussion.

A report presented by Jorg Goldberg and Andre Leisewitz of the IMSF said that capital investments in modernisation and rationalisation of production began to grow rapidly in the industrialised capitalist countries in the 1970s, and the introduction of new hardware and technology was further accelerated in the early 1980s.

Many speakers said the process was comparable in significance to the industrial revolution of the late 18th-early 19th

centuries, with the essential difference, however, that the main feature then was the transfer to machines of the functions of manual labour, and the manual use of instruments, whereas today machines are being invested with many of the functions of mental activity, the collection, transmission, processing and use of information in production. The authors of the report said: "The new wave of rationalisation projects radical changes in the character of labour, with the main role now belonging to information facilities based on microelectronics, which can be used to develop various devices performing the functions of management, control and data procession. The current transfer to technical facilities of these human functions... is now the fundamental process in the scientific and technical revolution /STR/ which is, in effect, its distinction from all the earlier revolutions in the productive forces system." By linking up technological operations generated by the STR, informatics helps to organise the production cycle in such a way that man ceases to be a necessary element not only in manual operations, but also in the management of production.

It is true that actual practice still has a long way to go to the mass emergence of fully automated, "unmanned" factories, the picture often projected by the futurologists. In the late 1970s and early 1980s, only one in five working persons in the FRG handled new automated means of production, but the use of electronic facilities is being rapidly expanded. By the end of the 1980s, the number of computers and read-out devices in the FRG is expected to double (to 800,000--900,000) and the number of industrial robots to multiply fivefold (to 30,000).

The "break-in" of new technologies into the world of labour, the authors said, now determines the working conditions and everyday experience for a steadily growing section of the working class. A poll taken by the Metal Workers' Union in the FRG in 1985 showed that in one year alone roughly 50 per cent of those polled had been affected by changes in the workplace connected either with the installation of new equipment or with organisational changes; more than 50 per cent of those polled were already operating electronic devices in various areas, whether numerical-control machine tools, automated assembly systems, display terminals for text processing and document recording, computer-aided design, and so on.

In the Foothills of the Mountain

Other participants in the symposium spoke of similar changes in the economy of other industrialised capitalist countries, with special emphasis on the ever faster pace of change. Robin Williams described the situation in Great Britain and stressed that the range of new electronic devices is now being sharply widened as compared with the automation and computerisation of the 1960s. Informatics helps to tie in more closely the design, manufacture and marketing of goods, causing changes in the structure of production and making it more flexible and operational.

The "chip and robot revolution" in many industries in the United States is, in fact, just beginning, noted John Pittman. "The fact is that high technology has reached only the foothills of the technological mountain it will climb" said Gus Hall, CPUSA

General Secretary, in assessing the prospect of the mounting tide of technological innovations in the years ahead and the vast changes in every sphere of social life which it entails. The AFL-CIO Committee on the Evolution of Work issued a report in 1985 predicting that by 1990 the country would have 100,000 robots and 20 million computers. Entire industries are being restructured under large-scale projects for the technical re-equipment of enterprises on the basis of electronic devices.

New technologies in Switzerland today, said Jean Spielmann, make it possible to turn out millions of watches without a single watchmaker. The components are fed in at one end of the automatic line, and the finished watches emerge at the other. One microprocessor substitutes for over 900 components in teleprinters, cutting down their production time from 75 to 17 hours.

The STR has been developing along a number of lines-- / new sources of energy, new materials and totally new technologies. The monopolies make use of these achievements in their efforts to reduce the crisis factors in the development of the capitalist economy, to modernise their production facilities and to adapt them to the new conditions. They look for ways to boost the labour productivity of the "aggregate or collective worker", to make more intensive use of hardware, to save on fuel, and raw and other materials, to reduce manufacturing time and so become more competitive. Their strategy, the authors of the report said, is based on the idea of integrated, full-cycle and flexible production rapidly responding to marketing conditions, ensuring

a wide range of products and operational replacement of models and types of goods with others.

The urge for greater flexibility of production is also reflected in the structures of industrial associations and enterprises. Along with the further concentration of capital and production by the major monopolies in recent years, there has also been evidence of their internal differentiation and the emergence of smaller independent units which are easier to manipulate and manage. "Flexibility" is also a consideration in the use of living labour, its organisation, regulation of working hours, etc.

The new technology has brought about deep structural changes in the economy, with the priority going to high-tech industries, which have been developing most rapidly. By contrast, other industries have stagnated or declined. The use of new materials, various alloys and plastics, more economical technologies and designs has led, along with other factors, to lower demand, for instance, in ferrous metals and the shutdown of steel-making capacity in many areas. There is also a geographical relocation of enterprises.

The STR and modernisation of production have had an uneven effect on the various capitalist states. In the less industrialised countries, the pace and scale of the process are much more modest than in the leading imperialist countries. In Portugal, for instance, Carlos Aboim Ingles said, there are still

only a dozen or so robots at four enterprises. On the whole, the monopolies want to leave the most high-tech lines of production in the industrialised countries, while transferring the less sophisticated, dirtier and more labour-intensive industries to the LDCs, where labour power is cheaper and environmental protection laxer.

The uneven use of STR achievements in the capitalist economy is also pronounced in the fact that its fruits go primarily to the militarised industries. It is there that the monopolies reap the benefits of R and D projects copiously irrigated by the shower of government military appropriations, while many areas of civilian research are starved of funds, so that there is a widening technological gap between the military and the civilian sectors. The military-industrial complex is getting to be the main consumer of STR advances.

What effect have all these changes had on the working class, on its status, and on its living and working conditions?

People and Robots

Various aspects of the impact of the restructuring of production on employment were considered at length by the

participants in the symposium, who said that the large-scale improvement of the productive forces and the ever wider use of resource- and labour-saving technologies were doing much to increase the mass unemployment, but they warned against any simplistic view of the problem.

Unemployment, which always goes hand in hand with capitalist economic operations, is generated by the laws inherent in capitalism and is determined by a set of factors. Their common denominator today is the interpenetration of cyclical and structural crises, with capital trying to find a way out through rationalisation on the basis of the STR. Cyclical crises in the capitalist world, the report said, have characteristically become deeper and longer, with the phases of recovery and expansion more superficial and running more slowly. The relation between the size of the reserve labour army and the state of the economy has become looser. In the past, the number of unemployed used to grow in the phase of economic recession, but would then decline as the able-bodied population was drawn into the labour process in the phase of expansion. Nowadays, labour is laid off not only in the phase of recession; with a few exceptions, the phase of recovery does not lead to any marked decline in unemployment. Every cyclical economic crisis expels "redundant" labour power from production, while the subsequent phase of flabby expansion blocks its way back. That was how the mechanism of the 1974-1975 and the 1980-1982 crises worked.

But new contradictions produced by the capitalist use of high technologies are superimposed on these processes in the functioning of the capitalist economy. The new technologies are designed to raise the competitiveness of companies, especially those working for foreign markets, both through higher productivity and economies in living labour, and in this sense mass unemployment and the current rationalisation of production are closely bound up with each other. John Pittman cited the example of the General Motors auto plants, where the installation of electronic systems for controlling production processes--from executive suites down to the shopfloor--makes many "redundant". The installation of 14,000 industrial robots at GM plants is expected to eliminate 60,000-70,000 jobs by 1990. For the whole of US industry, the figure is expected to be as high as 1 million. From 2 million to 3.5 million jobs could well disappear in the FRG economy by 1990, the IMSF has estimated. The falling demand in the number of those directly involved in the production process is one of the main social effects of the technological restructuring under way in the capitalist countries.

At the same time, the discussion clearly brought out the idea that the STR not only eliminates jobs, but also creates opportunities for the involvement of labour power, because it spins off new lines of progress and new types of products. High-tech industries keep coming on the scene, with new forms of services, so adding significance to such spheres of labour power reproduction as education and public health. The scale for the growth of employment could be fairly considerable, but at the present stage there is no adequate compensation for the labour power that is

being laid off. Urban Herlitz gave this indicative example: 70 welders at a Volvo assembly line in Sweden were replaced by 27 robots, and it takes only seven persons to keep the robots going and in good repair. A large number of working people face the prospect of losing their jobs, said John Pittman, if General Motors manages to realise its Saturn project, i.e. the replacement of the conveyor auto assembly with the module assembly, allowing one worker to perform several operations with computerised automated facilities. It will take only 6,000 employees to turn out half a million cars a year.

By way of exception, employment may go up by virtue of various factors in some countries and in some periods. There was mention of Japan, where the growth of officially registered unemployment was much lower than that in other capitalist countries, while STR innovations were being rapidly applied. Japan's competitiveness on the world market is being enhanced by its more active remodelling of the economic structure, a factor that enables it to "export" unemployment to other countries. There is also the peculiar system of employment in Japan, which helps to ease the effects of structural shifts, while getting the working people to shoulder the costs. Different results may be produced by the different concrete conditions in the various countries. Zenon Zorzovilis said: "Whereas in the developed capitalist countries the workers who are made redundant by high technology are to some extent absorbed by its manufacture, in our country, which is dependent on imperialism, the redundant workers are thrown out permanently, because almost all of the high tech is imported."

The overall trend in the use of labour-saving technology clearly operates against the working people, and that is increasingly true not only of industry, but also of management and the services, where over one-half of the wage and salaried workers in the industrialised capitalist countries are employed. In Britain, 45 per cent of office workers will be affected by automation in the next few years, and in the FRG--40 per cent. Computerisation in the banks could well result in a 30-40 per cent cut in their staff.

The technological restructuring of the capitalist economy is having an effect not only on the scale of mass unemployment, which has now risen to an unprecedented level in the OECD countries: 31 million, which is roughly equal to the population of countries like Portugal, Greece, Sweden and Ireland taken together. In view of the structural changes in industry, unemployment is also becoming structural. The replacement of traditional raw materials, the switch to the manufacture of less material-intensive products, the use of energy- and resource-saving processes have led to a fold-up of production and a decline in the erstwhile importance of industries like mining, metallurgy, shipbuilding, textiles, leather, etc. The laid-off working people find it hard to get work in their old trade or to learn a new one. Steel Labor, the journal of the United Steelworkers of America, says that of the 219,000 steelworkers laid off from 1980 to 1983, less than one-half--45.7 per cent--were able to find new jobs.

The situation is being compounded by the traditional concentration of "old" industries in some geographical areas, such

as the Appalachia in the United States or Clydeside in Great Britain. Many of those laid off from production move into the army of "unwanted people" for a long time because of the difficulty of retraining. That is why unemployment tends to become stagnant. Thus, almost 40 per cent of the unemployed in Western Europe are unable to find new jobs for more than a year.

The participants in the discussion spoke with special anxiety about the fact that unemployment affects large masses of young people: between 40 and 50 per cent of the jobless in the various countries are young. Hopelessness pushes young men and women, who have no experience in the class struggle, into extremist forms of protest against the injustices of the capitalist society, making them also susceptible to right-wing demagogy. The massive influx of women into the labour market is having a serious effect on employment. Women have to make do mainly with low-skilled work, which is now the first to be modernised, and that is why a larger percentage of women, as compared with men, are jobless in all the industrialised capitalist countries. The level of unemployment among members of ethnic minorities, immigrants and foreign workers, who are the first to be fired, is also disproportionately high.

Unemployment can no longer be measured by the number of the officially registered "unwanted people", William Stewart emphasised, because the structure of unemployment is itself undergoing changes that have a negative effect on those who are employed. Officially registered unemployment in Canada stands at 11.2 per cent, but together with part-time employment, the

figure is over 15 per cent. In the United States, along with the 8 million fully unemployed, there are close to 20 million part--time workers.

Many speakers said that part-time and temporary work has spread widely to reach an unprecedented scale. Part-time working in various capitalist countries affects between 7 and 30 per cent of the working people, including 9.5 per cent in the FRG, 19.2 per cent in the United States, and 20 per cent in Great Britain. In Greece, said Zenon Zorzovilis, 70-80 per cent of those who are hired at textile mills, and at garment and footwear factories receive contracts for only 2-4 months. For the sake of "flexibility" in labour relations, employers are quick to use part-time or temporary employment, because the uncertain status of those employed and their uncertain future makes it possible to step up their exploitation: labour is intensified, breaks are shortened, and wage rates lowered.

The formation of two labour markets is one effect of the STR's multi-faceted impact on the capitalist society. On the one market are the high-skilled specialists and workers handling the high-tech hardware and receiving relatively high wages and salaries. The level of unemployment here is low, and job vacancies are available. On the other market are the low-paid categories of low-skilled working people with outdated trades. Here the level of unemployment is high, and job tenure is extremely precarious. That is a source of poverty and deproletarisation of some groups of the working people.

This new phenomenon on the labour market meets the urge of capital to differentiate between the employed and unemployed, the long-seniority high-skilled and the general and temporary workers, the high- and low-skilled workers, between those for whom high technology poses the grave threat of layoffs / and those for whom it opens up prospects for advancement. Klaus Pickshaus drew attention to the fact that such stratification may be established through the "segmentation" of the various groups of working people, which leads to the emergence and promotion of special corporative interests, so enabling the capitalists to manoeuvre in order to split the working people through a "divide and rule" policy.

In this context, the participants in the symposium spoke with anxiety about the offensive which the monopolies and the bourgeois governments have mounted against the trade unions in some countries. Their first objective is to break the strength of the unions by enacting legislation to restrict their rights and powers. Bert Ramelson said that the conservative Thatcher government made use of anti-union laws to force the miners to call off their almost year-long heroic strike in 1985, and to thwart an impending nation-wide strike by railwaymen. The right--wing Kohl government in the FRG, said Johanna Hund, has amended §116 of the labour code and so jeopardised the unions' right to strike. The bourgeois Schluter government in Denmark has tried to restrict the unions' right to collective bargaining, an unprecedented development in the history of the Scandinavian countries, said Esben Andersen.

But the employers' intentions go beyond the mere desire to bring the unions to heel. They have set themselves long-term objectives in curtailing their functions as a social force and even in getting rid of them altogether. High tech is regarded, among other things, as a battering-ram against the trade union movement. Efforts are being made to prevent the establishment of unions in the new high-tech industries, making use of the fact that the working people are in a sense out of touch with each other in the production process. They have managed to do so above all in the services, where, in the United States for instance, only 20 per cent of the working people are unionised. Capital regards the weakening of the trade union movement as a necessary condition for stepping up the working people's exploitation in new forms.

Various Dimensions of Knowledge

The deep changes in the general education and occupational training of the working people and the content and level of their skills, it was stressed at the symposium, are among the most important social effects of the STR. These changes are most intricate and complex, and have a tremendous influence on the working people's awareness, mentality and general make-up.

There is, on the whole, a trend towards a higher level of education and skill standards of the "aggregate or collective worker", and an expansion in the volume of the working people's general and specialised knowledge. Thus, the number of workers with a primary education in the FRG dropped by 4 per cent from

1976 to 1982, that of graduates from secondary schools went up by 21 per cent, and that of persons entitled to enrol at higher schools increased by 41 per cent. Educational standards among the young are markedly higher than those of the older generations. There has also been a rise in the level of occupational training. The share of skilled workers among the employed has topped 55 per cent (in FRG industry, a distinction is made between untrained, or general workers; trained workers; and skilled workers).

There has, on the whole, been evidence of growing quality in manpower standards in the other capitalist countries as well. In the early 1980s, those who had a secondary education in the United States made up 77.1 per cent, as compared with the 65.9 per cent in the early 1970s, and complete and incomplete higher education--36.2 per cent, as compared with 27.2 per cent.

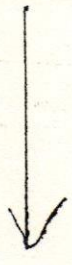
The changing structure of the active population and the rising percentage of office workers, foremen, technicians and engineers within the working class likewise as a whole tend to raise its educational and skill standards and to increase the share of workers by brain, instead of workers by hand, within its ranks.

The authors of the report said that "the intensive type of expanded reproduction of capital is also paralleled by an intensive expansion of the reproduction of labour power capable of performing more complex work. The growing significance of the use of such wage labour is one of the essential changes in the system of exploitation arising from the STR under capitalism."

But this tendency is realised in an extremely contradictory form. The peculiar thing about the development of the productive forces under capitalism today is that it is increasingly effected through a depreciation of wage-workers' skills and trades (de-skilling), and as these are made "superfluous". That is strikingly instanced by the reduction in the numbers of skilled workers as a result of the use of robots in car assembly, the introduction of new type-setting facilities in printing, and the automation of many operations that once used to take years to learn.

Experienced workers losing their jobs are often forced to switch to other jobs requiring lower skills. Even when they have a high level of general education and occupational training, they are unable to use their knowledge in practice.

There is a widening gap between an acquired skill and the functions workers actually have to perform. Thus, in the 1970s, over 300,000 skilled workers in the FRG had to change their jobs and to be posted as trained or untrained (general) workers. Polls taken in the United States indicate that nearly 85 per cent of persons with a specialised education have to make do with work which falls short of the level of their knowledge.



The spread of unemployment, as a result of which ever larger groups of working people have to leave the process of production for a long time entails the loss of their labour skills and standards, and increases the number of those who lag behind the headlong pace of innovation, with a widening gap between those who have acquired a new trade and expanded the knowledge now in demand, and those who have been deprived of the opportunity to do so.

But even for those who manage to stay in their jobs, contact with the new and much more sophisticated technology does not always entail a corresponding rise in skill standards. The owners of capital intend to economise on wages by rationalising production, and so seek not only to get rid of the "superfluous" labour power, but also, and wherever possible, to take on working people with lower--and so lower-paid--skills. Now and again, the introduction of new sophisticated hardware requires not a raising of the skill standards of service personnel, but, on the contrary, a minimum of knowledge and an ability merely to push buttons and keep an eye on the instrument read-outs.

The de-skilling of a section of the workers is also under way in connection with the structural shifts in the economy, such as the expansion of the service sphere, where the level of special knowledge among the working people is mostly lower than it is in the sphere of production. John Pittman said that by 1990, 72 per cent of the manpower in the United States (almost 90 million) is expected to be employed in the services, where the demands on skill training are, on the whole, lower than those in industry.

Groups of the population, such as immigrants, who usually have to do the dirtiest general work, are bypassed by the growth of skill standards. A sizeable section of the young has difficulties in learning a trade. The rise in the level of occupational training among women has been very slow. Thus, in the early 1980s, only 6 per cent of working women in the FRG were classified as skilled, while 50 per cent were untrained.

Employers seek to economise on the costs of occupational training by getting the state to take care of it. Meanwhile, conservatives in the organs of power have been reducing the scale of occupational training, cutting back on various courses, technical trades schools, etc., under the pretext of "trimming" government spending.

The cost of educating and retraining personnel, said William Somerset, is regarded by employers as unacceptable because it goes to increase the cost of the product. He gave the following example: British Telecommunications, one of the major employers in Ireland, began to reduce its training schemes immediately upon being privatised: a number of free courses were abolished, and correspondence studies were almost entirely folded up. The employers, he said, want the working people to bear the costs incidental to occupational training, and to deduct these costs from wages.

The participants in the symposium considered changes in skills among the working population and said that in the drive for cheap labour power, the monopolies have been transferring to the LDCs many lines of production requiring less complex labour, so in a sense exporting low-skills to the LDCs and thus keeping them economically backward. The industrialised capitalist countries

have set themselves up not only as keepers of the new, more sophisticated and perfect technology, but also as centres with the most experienced, skilled and educated personnel. Such a "division of labour" is designed to give the imperialist powers additional levers for dominating the peoples of the Third World.

Who Needs a "Glass" Worker

The content of labour under the STR was a problem considered at length by the symposium. The advocates of capitalist rationalisation often praise high tech as relieving / the workers from arduous labour, as a source of more imaginative work, and as giving the working people a greater interest in what they are doing. Technical progress is presented as an instrument of radical change in the worker's status in production.

Some sociologists in the FRG, the report said, preach "new concepts of production" and "neoindustrialisation", claiming that modern technologies help to overcome the system of labour fragmentation and to rid the workers of their / sense of "alienation". Thus, right-wing social democratic ideologists say that, given the right "modernisation strategy", it is possible to fit a "social safety net" to the high tech, which can be turned into a crucial instrument in "humanising the world of labour" even under the capitalist relations of production.

But, speakers said, technology alone is incapable of bringing about any radical change in the content of human activity. It does, of course, create the prerequisites for easing labour and eliminating arduous, noxious and hazardous operations, in

which men can be replaced by robots to perform many monotonous and repetitive operations. But the capitalist use of high tech is dictated not by these considerations, but above all by the capacity of high tech to help the employer to economise on the costs of variable capital, i.e., living labour. That is why high technology is introduced only where its use holds promise of higher profits: capitalist "profitability" is a yardstick that falls short of measuring the ways to ease labour and make it healthier.

Extensive studies of various aspects of rationalisation in the metal-working industry in the FRG were carried out by the Metal Workers' Union from 1982 to 1984. Members of production councils at roughly 1,000 enterprises employing over 100 persons each were asked about the changes ensuing from the introduction of new technology and new forms of labour organisation.

Their answers produced the following picture (percentages):

Form of workload	Decrease		Increase	
	Blue-collar workers	White-collar workers	Blue-collar workers	White-collar workers
Pace work	1	3	77	28
Arduous manual labour	38	-	13	-
Eyestrain	-	1	-	68
Noise	32	12	41	17
Monotony	7	3	41	34
Social isolation	4	1	35	68

While the physical strain has diminished, most workers found that the pace of work, the monotony and the noise levels had gone up. What is more, the eyestrain for office workers was much greater. The social isolation had also sharply increased.

"Practical experience," said William Stewart, "has dispelled the illusion that the introduction of electronic devices, robots, and flexible production systems would put an end to exhausting and stupefying work. Many types of arduous labour are, indeed, now performed by robots and flexible systems, but the changes in production connected with scientific and technical innovation, create jobs where labour is as exhausting and dangerous. Studies carried out in some countries where microelectronics are widely used show that working people handling new equipment suffer more often from headaches, chronic fatigue, insomnia, ear and eye complaints, and some diseases."

Many speakers stressed that high tech helps the employers to step up control over the employees, their work and behaviour. This kind of "glass", "see-through" worker is easier to exploit and to use as a pliant tool attached to the machine. There is ever wider use of systems for collecting and processing data on the pace of production and on personnel. In the course of the poll taken by the Metal Workers' Union in the FRG, 48 per cent of the members of production councils and 53 per cent of the employees noted increased control over the work collectives.

Who Wins and Who Loses

The introduction of high tech which sharply boosts labour productivity should, it would seem, create the objective prerequisites for a corresponding growth in wages. In practice, however, the very opposite has been taking place under the impact of the laws of capitalist production. Employers strive to use the growing labour productivity in order to extract higher profits and to appropriate as much of the surplus-value created by the labour of the working class as possible. In consequence, wages are kept at the lowest possible level, and go up only after bitter struggles by the working people and the trade unions or whenever there is a temporary rise in the demand for some categories of labour power.

But even when there is an increase in wages, it falls far short of the growth of profits. In the FRG, for instance, the nominal wages of workers and employees went up by 10 per cent from 1980 to 1985, or by a total of 50 billion marks. Meanwhile, the capitalists' net profits went up by 100 billion marks, or by 40 per cent. As a result, the share of wage workers in FRG's national income in 1985 came to only 62 per cent, or less than the 1970 level. The exploitation of the working class was intensified, even if wages did grow in absolute figures.

Some bourgeois economists and politicians assert that it is unemployment and the layoffs of some that assure the rest of high incomes. They claim that one cannot have it both ways: it is either high wages and low employment, or high employment and low wages. This line of argument does not hold water.

Unemployment, which keeps growing under the impact of the capitalist use of high tech, helps the employers to pressure the working people, who live in constant fear of losing their jobs, and so become more amenable and less demanding on working conditions, wages, shopfloor safety and social security. Part-time employment and "flexible" forms of labour organisation also create more favourable conditions for employers in their drive against the working people's rights and wages. Temporary workers have less protection than full-time workers under social and labour legislation and wage contracts, and bend more easily to pressure from the employers.

Many speakers said that the tendency to freeze and depress wages was strongest just where unemployment was rampant. Thus, in Ireland, where the percentage of "redundant" people is especially high (18.5 per cent), wages are among the lowest in Western Europe, and the authorities have been driving home that point as a lure for investors. "Whenever one lands at Dublin Airport," said William Somerset, "one sees the billboard which says: 'Welcome to the land of lower labour cost in Europe'."

Many examples were given to show the employers' use of the threat of layoffs to reduce wages. Carlos Aboim Ingles cited this amazing fact: the workers of many enterprises in Portugal go on working for months (often up to half a year) without getting any pay at all--merely to keep their jobs. Almost 120,000 working people are victims of such practices. Unemployment among able-bodied young people enables the employers to exploit most savagely the "lucky ones" who manage to find jobs. A government plan to

"expand employment" for young people under the age of 25 provides that young men and women employed under the plan are to receive only a third of the national minimum wage.

Nor does that apply only to such less industrialised capitalist countries as Portugal, Ireland or Greece: it is true of all the industrialised capitalist countries. Indeed, it is true even of industries where the high degree of hardware renewal and rising skill standards among the working people create--one would assume--prerequisites for raising wages: they are effectively limited or reduced, especially where trade unions are weak or non-existent. What is happening is described more accurately by William Winpisinger, president of the International Association of Machinists and Aerospace Workers and a member of the AFL-CIO Executive Council. Speaking to the National Lawers Guild at Detroit in November 1985, Winpisinger said: "Today, in that pitifully small portion of the labour force represented by trade unions, employers in the supereconomy and the mini-economy alike, are demanding their workers take wage cuts, wage freezes, give up cost-of-living adjustments, reduce health care coverage, cut-back pension and retirement benefits, give back break periods and wash-up times, pay full costs for meals in company cafeterias. God knows what's happening where workers have no unions or collective bargaining rights."

Speakers dealt with the impact of modernisation in production on the living standards of the population and noted that the rising labour productivity, and the declining labour inputs per product-unit could make goods cheaper and so help to raise the

working people's living standards. But something different has taken place. On the plea of the need to cover the mounting costs of production arising from the installation of expensive high tech, higher wages, more expensive fuel and raw materials, big capital has more than recouped its outlays both by expanding output and by raising product prices. In this way, what the working people gain through higher wages on the shopfloor is taken out of their pockets in the market-place.

Thus, actual wages in the FRG in 1985 (considering the rise in prices) were in fact 6 per cent down from 1979. The fruits of the STR went to the capitalists and not to the working people. The redistribution of incomes in favour of the monopolies has intensified.

The picture was similar in the other capitalist countries. In Canada, said William Stewart, the working people's real incomes shrank by 12 per cent from 1979 to 1985. In Sweden, said Urban Herlitz, real wages dropped by an average of 10 per cent during the economic recession of the early 1980s, and have yet to return to the mid-1970s level.

Big capital makes money on inflation, but puts up a fierce fight against linking up prices and wages, and it is no accident that sliding-scale wages (indexation), which the trade unions had won earlier in hard struggle and which gave some protection for working people's incomes against depreciation have been abolished in some industrialised capitalist countries over the past few years under pressure from the right-wing forces.

The need to modernise production and to fund investments so as to regain "market leadership" is also invoked in the drive against the working people's living standards through cutbacks in social

spending, the "social dismantling" which has recently been pushed through in many capitalist countries. "Reaganism" in the United States, and "Thatcherism" in Great Britain are apt examples: spending on public health, education, social security, relief for the poor and various other aids, including unemployment insurance, is being slashed. In the FRG, for instance, one-third of the almost 2.3 million registered unemployed in 1985 did not receive any relief at all.

Taking Up the Challenge

The sharpening crisis of state-monopoly capitalism and new forms of exploitation appearing under the influence of the STR and the mass unemployment confront the working class movement with complicated tasks and open up a new field in the class struggle.

"The challenge we face from the development of the new productive forces", said Heinz Jung, "demands of us, Communists, a response in our strategy and policy... For the working class under capitalism scientific and technical progress is a double-faced Janus, who looks on it mostly with his grim face." What Marx said in his "Capital" about "the contradictions and antagonisms inseparable from the capitalist employment of machinery" still holds true.[1] He stressed that the productive forces cannot develop on their own, while the methods of appropriating surplus-value predominant in the society are reflected in the concrete forms in which technology is used. With the passage of time, the class struggle is bound to widen and grow more intense.

The representatives of the IMSF and the German CP stressed that how high tech is used depends on whose interests it serves. By its very nature, high tech provides a diversity of opportunities for its use, and the choice of this or that version being debated at the enterprises and in the industries results from the balance of forces in the class struggle.

Over the past several years, there has now and again been a more or less uncritical approval of high tech and rationalisation of production within the working class movement. Bourgeois propaganda presented radiant prospects, while the limited scale of the changes did not seriously affect the interests of the mass of working people. Robin Williams spoke of trade union attempts to adapt to the ongoing processes, to secure the maximum advantage at minimum cost, and to ensure their balanced use. In the late 1970s, the British Trades Union Congress signed "high tech agreements" with employers under which the trade union were given consultative rights. However, these applied mainly to the traditional issues: wages, labour protection and, to a lesser extent, job security and retraining. Important matters like high tech planning, investments and labour organisation remained outside the framework of the consultations. With a few exceptions, the unions are not ready to propose alternative models for the use of high tech, and blindly follow the employers. As a result, some of the advantages that had been gained were distributed most unevenly, in favour of high-skilled workers at the expense of the less skilled. The question of new jobs remained in the background.

It was said in the discussion that the growing burdens for the working people resulting from modernisation and experience of actual class struggle for jobs have helped to develop a more critical attitude to the use of high tech by capitalists. The substance of this approach was concisely formulated by George Jackson, who said: "If capitalism wants new technology and higher labour productivity, we must support these objectives, but not allow the queues for unemployment benefits to grow, and see to it that the wealth created is distributed for the good of all." Formulating one's attitude to high tech impels one, therefore, to take a critical view of the whole capitalist system, to wage struggle against the use of the STR to step up the working people's exploitation.

At the same time, speakers said that the working class movement and its allies were still at the initial stages of this process and had little experience, which is why information, explanation and orientation of the working people become vastly significant in the activity of the communist and workers' parties.

Stephan Voets suggested that there was a need to formulate policy ahead of developments, clearly showing the contradictions in the capitalist use of scientific and technical progress and formulating the Communists' response. The Theses approved by the Eighth Congress of the German CP, for instance, say: "The working class and its organisations must counter the technological policy of big capital with their own strategy for an exclusively peaceful development and application of hardware in this area for the benefit of the working people. It must insist on getting advance information on scientific and technical breakthroughs, and have a greater say on research, technology, rationalisation, labour organisation, general education and technical trades training... Action for rational use of scientific and technical progress needs to be closely tied in with the struggle for peace, democratic and social progress, and for an end to monopoly rule."[2]

How is one to withstand the wide offensive mounted by capital on the working people's rights and gains with the aid of high tech? In what way could scientific and technical progress, in the view of representatives of the working class, be made to serve the society as a whole, instead of the greedy monopolies alone? Participants in the discussion spoke in the light of their parties' policy documents, and set forth answers reflecting the complexity and diversity of the problems under discussion.

It was recognised that the one of the main tasks is to fight for shorter hours with full wages. In some countries of Western Europe, the target is a 35-hour working week, and in the United States and Canada, a 32-hour week. The sizable growth

in labour productivity from high tech makes these demands economically grounded and realistic. Experience shows that capital has stubbornly resisted any reduction in working time, and wherever it has accepted the idea, it has insisted on cutting wages, i.e., in effect, imposing part-time employment on the working people. It is obvious that working hours cannot be actually reduced without class battles against capital and without a strengthening of the working peole's class consciousness and organisation. That is evidenced, for instance, by the experience of the 1984 struggle by the West German working people, who subsequently got a 38.5-hour working week.

Shorter hours could also help to ease the burden of unemployment, because it is a way of providing additional jobs. At the same time, if the number of "redundant" people is to be markedly reduced, there is a need above all to create new jobs, and here the demands contained in the communist parties' policy documents concerning state employment programmes through government investments come to the fore. There is also a need to do everything to protect existing jobs, without reducing any overdue renewal of production, but combining it with ensuring the rights and interests of those who want to go on working.

Scientific and technical progress should essentially improve working conditions, making work easier and more meaningful. But capitalist rationalisation, as a rule, speeds up labour and increases the workload. Speakers said that protection against such effects must include the right of veto by trade unions and work collectives whenever new technology entails more overloading for

the working people. Alongside the task of improving or, at any rate, not worsening the working conditions, there is also the task of preserving and expanding the social gains.

The training and retraining as new hardware and technologies are introduced is an ever more pressing problem. That can be done by extending and modernising the occupational training system with funding by the state and the employers, to make the working people's adaptation to the new demands in production less painful. Special attention needs to be given to young people, whose entry upon adulthood depends on the training they get and the chance of finding a job to match it.

The working people find absolutely unacceptable the control and surveillance of their behaviour at the enterprises and the efforts to find out their political views, something that computer facilities make it possible to do. All the democratic forces must take a resolute stand against such pressure on the individual and against the curbs on the freedoms.

Speakers stressed that it is not enough to provide protection against the negative social consequences of high tech: work collectives must have a say in how it is introduced and how labour is organised. That is why the working people and their unions should have access to plans for remodelling production so that they could exert an influence on these, and put forward their own alternative proposals.

In the course of the discussion, attention was drawn to the fact that structural shifts and the differentiation within the working class, the drawing in of some strata into production and the rejection of others, especially of young people, pose the threat of contradictions between various groups of working people. Part-time and temporary employment make it very hard to unionise the categories of the population affected, and employers and the bourgeois state make use of the fact in order to inject divisions into the midst of the workers, and undermine the positions and curb the functions of the trade union movement. That is why, speakers said, one of the key tasks is to preserve well-knit trade unions and to extend their influence among new groups of working people and also the unemployed, for on that largely depends success in the fight against the social effects of the capitalist use of high tech. The transnational corporations operate on an international scale, with capital from various countries joining in anti-labour attacks, which means that the working people and their trade unions can and must confront them with the strength of internationalist solidarity. Joint programmes for struggle and concerted action on an international scale, it was said in the discussion, could help the working class to tackle such a priority problem as the introduction of a shorter working week, without any cuts in pay.

How effective the working class movement is largely depends on the extent to which it succeeds in drawing into the common struggle for the working people's rights and interests

such burgeoning groups as office workers and intellectuals, and in taking account of their specific requirements. The objective basis for doing so is there, because the working and living conditions of a sizable section of office workers and intellectuals in scientific and technical fields are similar to those of the workers.

The negative effects of the capitalist use of high tech cannot be curbed unless the working class movement puts forward more general, politically meaningful demands, some of which were indicated by speakers in the discussion. There is, for instance, the need to protect the environment from being polluted and poisoned, something that requires the allocation of large funds both by local capital and by the state, an approach that could create new jobs and ease the unemployment. Research should be made more relevant to the needs of the working people and to the creation and satisfaction of new and rational wants. What is most pressing is the demand for an end to the orientation of science and technology towards the development of the instruments of war, for it diverts vast material and manpower resources from civilian production. Protests against the militarisation of science provide good ground for better contacts between the working class movement and the scientific and technical intelligentsia, and the latter's involvement in the common struggle for peace.

There is also the question of formulating alternative economic and structural policy conceptions envisaging more balanced and all-round development of the productive forces under

democratic planning and control. If that is to be done, the key sectors of the economy need to be nationalised, with the trade unions and the working class having wider democratic rights and a say in the management of production. With the awareness that socialism alone offers opportunities for truly harmonising the interests of the working people, the whole of the society, and the use of new hardware and technology, the participants in the symposium emphasised that the demands and proposals put forward in the course of their discussion nevertheless constitute a realistic basis for the struggle for the interests of the popular masses at the present stage of the scientific and technical revolution.

[1] Karl Marx, Capital, Vol. I, Moscow, 1956, p. 441.

[2] Thesen des 8. Parteitages der DKP, Neuss, 1986, p. 49.

TKP: 'T'de sıhhatli eylemlere güveneceğiz'
TKP Genel Sekreteri İbrahim Sever, Ataman'da düzenlediği basın toplantısında 'gerekli zeminde, gerekirse' dedi (18 Şubat, Cuma)
içinde TKP(B) dahil.

Tercüman Kimin (Başyazı)
(21.2.87, Terc. Ave.)

İslâmın Geleceği (Taha Akyol, 21.2.87, Ave.)

Foreign Report, 12 Şubat günlü sayısında
CIA-MIT ilişkileri. (Terc. 21.2.87, Ave.)

NETAŞ grevi neden uzadı? (Coşkun Kırca, 21.2.87, Hür. Ave.)

Weinberger: 'Gerekirse, OD'ye müdahale olur.
T., OD'ye güvenini kaybetmemiş.'
(Milliyet, 21.2.87, Ave.)

SEİA örneğinden hareketle, hem ABD, hem de T'de ayrı ayrı inceleyeceğiz. (Milliyet, 22.2.87)

24 Şubat '87

Kurucularının büyük bir bölümünü ANAP'lıların oluşturduğu Türk Demokrasi Vakfı adlı bir vakıf kuruldu. Kurucuları arasında Mesut Yılmaz, Bülent Akarcalı, Nurettin Koçak ve Faruk Tara da bulunuyor (WDR, Köln Şubat 87)

National Endowment for Democracy.

Bülent Ecevit: Çok yakında sosyal dem.lar aynı çatı altında birleşecek. (Güneş, Şubat 87)

Hakkâri'nin Uludere ilçesi Taşdelen köyünde 14 kişi öldürüldü. (23.2.'87).

Çankaya top.da – "Bölge halkının geniş çapta silahlandırılması" (24.2.'87)

Yunanistan'da Am.nın Sesi istasyonunun izin süresini bugünlerde uzatılacağı bildiriliyor.

SHP:

NATO antlaşması çerçevesinde yapılan ikili anlaşmalar gözden geçirilip ülke çıkarları doğrultusunda açıklığa kavuşturulacak. (Cumhuriyet, 18 Şubat '87)

Ayben ve Perinçek, TİP'in kuruluş yıldönümü dolayısıyla bir toplantı düzenlediler
(Milliyet 23.2.87, Avr.)

Hasan Değer ile Necdet Ünüş'ün görüşmesi.
(Değer'in Celâl Talabani'yi tanıdığı gerekçesiyle)

(23.2.87) / Paris'te George İbrahim Abdallah'ın durusması başladı.

Has.

+ Sovyetler - Barış
= SEİA
+ Weinberger / OD'ya müdahale
14 kişinin öldürülmesi
- ~~[illegible]~~ Yun. la diyalog.
- İşkence - İnsan hakları - Mustafa Hayrullahoğlu
- Dış borçlar.
- NETAŞ / Sendikayı örgüt yöneticilere çatıyor.. Dayanışmayı hedef alıyor.
- Talabani / Bölücü
Bölücülerin birleşme yolunda adımlar atmaya başlayınca saldırıcılar ABD emp.'e, dayanışma karşı, çıkarı dönüşümlere çatıyor.
Tankkat başlarının ellerindeki birlikler ABD emp. ve amaç edilmek isteniyor.

" Geniş yorum "
1972 Anlaşması
Taft - Coşkun Kırca
[13.2.87 Hürriyet, Avr.
17.2.87 Pravda]
16.2.87 Gorbaçov - Barış Forumu

- 7. Plenum'un Anlamı - Önemi.
- TKP'ye saldırılara yanıt

VONTO-870923DR

SUPERCONDUCTIVITY CAN RESHAPE POWER INDUSTRY

By B.Konovalov, Izvestia science commentator

"In the past few decades I, like many others, have always believed that mastering nuclear fusion is the top priority scientific and technological problem that faces humanity. Now I think differently." This was the statement made in an interview with me by Academician V.Ginzburg, a well-known Soviet theoretical physicist. "Today we must give pride of place to the discovery of high-temperature superconductivity due to its significance and its revolutionary potential. And the first to be changed by it will, surely, be electric engineering, many fields of electronics, and transport. And, in my view, it may likewise sharply change the traditional views on priorities in the power industry. For fusion units superconductivity promises compact-sized and powerful magnets. But at the same time, it raises great hopes for their rival, which is modest as yet -renewable energy sources - sun and wind power. Here one of the central problems is to store energy. The creation of economical and superconducting grids would solve this problem. In them an electric current could circulate for truly an astronomical time. In good superconductors it may exceed the age of our solar system. Energy can be pumped into superconducting accumulators when there is sunshine or breeze. And then be tapped by a power system at any required moment."

The seminar, which Academician V.Ginzburg has long been conducting at the Physical Institute of the USSR Academy of Sciences, has of late focussed on the discussion of superconductivity. And the conference hall of the Institute is invariably crowded. Similar interest in superconductivity is at present shown all over the world. Physicists joke that the 18th conference on low temperatures that was recently held in Japan became the first one to deal with

high-temperature superconductivity. At sessions devoted to this problem the hall capable of holding 2,500 people was always filled up.

Economics is now up to the hilt for superconductivity. Its advantages have been known to all for a long time, but a "current without losses" carried too high a price. It was necessary to use liquid helium for cooling superconductors. It is a rare gas found in nature as a minute admixture to natural deposits and exceedingly volatile. The result was that involved, closed-cycle and multi-layered structures had to be erected for cooling purposes.

In March of this year, however, the situation radically changed - superconductivity was achieved when cooling with liquid nitrogen. And this alters the whole complexion of the thing. Judge for yourself: a litre of liquid helium costs about 10 roubles, and of liquid nitrogen, some 5 kopecks. Given large-scale use, rare helium would have quickly risen in price, while nitrogen is available in our atmosphere in plenty.

Besides, the new superconductors have proved to be not some intractable and hard-to-manufacture materials, but ordinary ceramics.

Technologists at industrial firms in many countries have already learned to make from a brittle ceramic superconducting plates and wire necessary for technical use. Scientific laboratories are obtaining superconductivity at moderate frosts - minus twenty degrees Centigrade. True, these materials are unstable. Nor do we know in full the mechanism whereby high-temperature superconductivity arises. But Academician V.Ginzburg, who long before the current boom called upon the scientific community to direct efforts at the solution of this problem, is confident that all barriers in the path of theorists and experimenters will soon fall. He and many others believe that superconductivity can be reached even at room temperature. It is up to scientists to make it a reality. Now they are showing a tremendous interest in the

problem. Perhaps without any precedent in the past. At any rate, the current creative upsurge is genuinely worldwide.

One admirable accomplishment follows another. And it is quite feasible that the chain reaction of successes in superconductivity will inevitably lead to a reassessment of values in the power industry and to a fast quickening of interest in renewable sources of energy. Characteristically enough, the same problem is attacked, only from the other side, by scientists concerned with the physics of semiconductors.

Recently we talked with one of the leading Soviet specialists in this field, Academician Z.Alferov, from the Leningrad Physical and Technical Institute of the USSR Academy of Sciences.

"The cost of semiconductor stations is today about ten times higher than that of nuclear plants," he said. "But if we consider the necessarily greater expenses for increased nuclear station safety, which has become inevitable following the accident at Chernobyl, the difference will be diminished. To lower the cost of power generated by photocells is above all the problem of increasing their efficiency (or rather, the coefficient of transforming light energy into electricity). Some progress here is clearly discernible. While in the 30s the photocell had an efficiency of about one per cent, today the efficiency of mass-made photocells used in space and ground power stations is as high as 10 per cent. In the laboratories there are photocells with efficiencies reaching 30 per cent."

We now know that by concentrating energy by means of simple and low-cost reflectors, with photocells taking up only one-thousandth of the light-collecting area, it is possible to increase the efficiency of solar power stations even further.

A traditional argument against solar power is its scattered nature. True, not much of it, unfortunately, falls on one unit of the Earth's surface. It means solar power

stations of great capacity will have to occupy considerable territories. But, pardon me, isn't the situation the same with hydro-engineering projects? An essential requirement there is to flood vast regions and impound enormous water reservoirs in order to obtain large capacities at hydro-electric power stations. It often happens, moreover, that the most fertile floodlands are covered with water and taken from agricultural use. Solar-powered stations could use stony and barren wastelands.

There is one more consideration which is usually not mentioned: adaptability of solar power stations to easy erection. Semi-conducting power stations can wholly and completely be manufactured in factory conditions to be only site-erected. This does not compare with the huge amounts of building and assembly work involved in the construction of conventional and nuclear power plants.

If we add to the arguments put forward by Academician Alferov that the progress in new superconductors holds promise of economical accumulators for solar power, then it will be clear why, in the view of scientists, it can become a future rival of nuclear and thermonuclear power stations. The world is now showing a growing trend towards safer and ecologically cleaner stations. Nuclear fusion plants, at least the types now contemplated, are potentially unsafe, as are nuclear plants. Solar power in this respect is the ideal. It is absolutely harmless and knocks from the hands of fusion plants their ace of trumps - the guarantee of saving humanity from a power famine. While the sun shines in the skies, the "reserves" of solar power are not threatened with exhaustion.

So now it is time that a fashion for solar power should start. That fickle scientific fashion that generates general interest, and a spirit of competition in the laboratories in the various countries. Superconductivity is already in vogue. If the same enthusiasm and concentration of scientific effort, resources and finance is focussed on solar semiconductor power, one may well expect a great leap forward

here. Certainly a long and difficult road lies ahead, but not longer perhaps than that of fusion station developers. If at least half of the effort and funds now being expended on fusion research were at present directed to developing semiconductor-based solar power engineering, it is anybody's guess who might finish up the first.

(Izvestia, September 22. Abridged.)

THE END

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BUILDING TODAY FOR TOMORROW

Academician V. Legasov

Today each individual is experiencing the dual feeling of the workability, inevitability and progressiveness of the changes taking place everywhere and at the same time of the gaping abyss between what should and can be in the world surrounding him and what is actually in it. We are now receiving in abundance contrasting pictures of magnificent technical and organisational achievements and economic and organisational actions that are totally unacceptable and devoid of common sense.

In these contradictions, in the totality of separate facts it is not always easy to ascertain a uniform picture of the latest, enormously extensive and important scientific and technological revolution taking place in the world, in which the socialist community, having made a delayed start, is obliged to fit in and obtain the best results by virtue of being the best prepared socially for the current stage in human development.

We are at the conclusion of the preceding stage of the industrial revolution, which lasted several centuries. The historic mission of this stage, which began with the invention of the steam engine, was to develop magnificent samples of engineering in all spheres. The end of the 19th century and the 20th century have witnessed an inordinate preoccupation with records: farther, higher, faster, stronger. People became successful at this. In one way or another the industrial revolution has enriched humanity with astonishing breakthroughs, and there arises the natural desire to possess all that the human mind has fashioned.

However, the attempt to satisfy this desire, to saturate the market with goods mass produced by basic

technological methods has spawned a series of crises that have afflicted our community.

Initially these crises were differentiated: the food crisis, which involved a shortage of proteins for a growing population; the energy crisis, which was interpreted as dwindling stores of easily obtainable fuel; and the ecological crisis, which was explained by the unwarranted saving of funds for the construction of purification facilities.

However, years passed--years of work by the world scientific community, and it was becoming increasingly clear that the Earth could feed between 10 and 12 billion people, and that there was no theoretical shortage of energy resources. It is also becoming obvious that the purification facilities that have been set up everywhere will not save the Earth from the ecological upheavals caused by accident situations, the threat of which hangs like the sword of Damocles over developing industry.

The approach that had taken shape over the centuries usually dictated the creation of high-capacity mono-enterprises--mining, iron-and-steel, chemical. Hence the purposefulness of both creative efforts and mechanisms for extracting the requisite component, and all the rest--waste that is stored, destroyed, emitted and concealed.

The analysis that has been done prompts the conclusion that the main problems evoking universal alarm today are caused by the historically established, traditional approach to production. This alarm means the onset of a technological crisis, and what is happening today in laboratories around the world, at representative forums and the political sphere must lead to a new stage of the scientific and technological revolution, which is increasingly being called the technological stage. What is being advanced to the forefront at this stage is not simply the tasks of creating new equipment or continuing the production of old, and not

questions of what to produce and how much, but also such questions of how, why, and at what material and social risk.

The CPSU has made bywords such notions as "perestroika", "new thinking", and "glasnost" not only and not so much due to specific negative phenomena in the past few decades of economic development, but by virtue of the fact that it is the communist world view and dialectical materialism as its philosophical underpinnings that have enabled the CPSU earlier and more acutely than anyone else to realise how critical the inertness of the human community really is.

The preceding feverish stage of economic development, which created a developed social and political infrastructure, has exhausted itself, leading the world to the danger of formidable crisis phenomena. Today the outlines of this multifaceted danger stand out in bold relief. This is the threat of a global military catastrophe. The threat of the destructive action of major industrial accidents is already comparable to the threat of war, as in today's energy sphere alone some 10 billion tons of conventional fuel, i.e., a mass capable of burning and exploding, has become comparable to the arsenal of nuclear weapons amassed in the world throughout the history of its existence, is produced, transported, stored and used worldwide. Such chemical components as arsenic, barium, phosgene, ammonia and prussic acid are processed, stored and transported in quantities ranging from hundreds of billions to trillions of lethal doses, which is ten to a hundred times greater than the accumulated radioactive substances in the same measurement units. This is the intensifying stationary, extra-accident influence of modern processes on the environment, and health (ecological problems). This is the breakdown of social, economic and resource harmony on the regional as well as interstate level. This is the pumping of the surplus brainpower from the humanitarian

sphere into the technical sphere and the divorcing, in the context of modern production methods, of an increasing number of people from tackling the problems of this production and managing it.

The new leadership of the CPSU and the government has not only declared with a high sense of responsibility the need to develop the new thinking and to carry out the restructuring drive in the present-day world conditions; it has also precisely formulated its goals and tasks, which are readily united under the single term "security".

Security is being referred to in the literal sense, as survivability, as the prevention of military confrontation at all cost. This part of the programme was expounded most fully in Mikhail Gorbachev's article "Realities and Guarantees for a Secure World".

Second, safety from a stationary or emergency impact of high-capacity industrial infrastructure. A series of specific decisions to protect the environemnt and human life and limb has been taken in the USSR in the last two years, but there has to be a cardinal change of philosophy and machinery of decision-making regarding industrial projects which have been launched earlier or are in the designing stage.

Third, safety -- and that is already a specific problem for the USSR -- from any further economically unprofitable national business management. This is the most complex part of the programme.

Fourth, safety from a possible departure from the projected course and a retardation of the on-going process embracing the whole of society. This safety chapter, not yet formalized in all of its legal aspects, is connected with more open speaking, monitoring the performance of all officials and organizations, and promoting the fullest-ever democracy along with abiding by the principle of personal responsibility.

Fifth, safety of the cultural and historical heritage of each of our national ethnic communities and from the

incitement of ethnic or religious strife and insulation in any shape or form.

Sixth, safety from both orthodox conformism and lack of principle, from disregard for the best traditions and common human values and achievements and from excessive influence of technocratic trends.

Finally, safety from the loss of the great social gains from 70 years of Socialist experience.

The sweeping restructuring effort undertaken upon the inititiave and under the leadership of the CPSU is a matter of general, world-wide interest, with objective reasons and specific features for each country.

A number of industrialized countries have already taken what amounts to a step forward towards the technological age by having created a series of production units on a new basis: mini-factories, mass-scale computerization, robotics and improved systems of communications, cutting down their energy demand by 25-30 per cent while expanding production, and creating unique types of material on the ceramic, polymeric or composite basis. Technological achievements are already beginning to modify the social content of work in a number of cases. At the same time, these countries have a host of most dramatic social and racial problems to deal with and face the threat of losing their ecological and psychological safety.

We have different problems more related to a loss of time in technological advance and delay in resolving a number of social and cultural problems.

These are all very difficult problems, of course. But there can be a rough concept of this technological society today. First of all, it must become substantially less energy- and resource-consuming. The opportunities for it are great. Normally, we compare performance in the USSR and abroad and we say and write much about national technology falling behind Western, on balance. For instance, we spend 20-50 per cent more energy for the production of materials

in common use, such as steel, aluminium, cement or paper, than the best of Western firms. However, if you figure out how much energy is theoretically needed to produce a unit of the said materials, you will find that even the best of Western technologies overstep the theoretically estimated rate of energy consumption by 4 times for steel, 6 times for aluminium, 5 times for cement, 125 times for paper, and 9 times for oil refining.

Obviously, none of the world's scientific workers can give any recommendations today about how, for example, to produce paper at one-hundredth of the existing cost or spend one-fourth of the amount of electric energy now used to make a ton of steel. In fact, one hardly ever expect a process to cost exactly as much as can be theoretically calculated. But the examples just mentioned show how far modern technology is from ideal and how vast are the reserves yet to tap to improve it. These figures point up the road researchers have yet to traverse.

Is it practical to put the matter this way at all? It is clear even now for those who have already taken this road that evolutionary improvement of well-running machinery and technology will not produce too much of an improvement and that the next stage of the scientific and technological revolution means applying new processes based on other principles.

Now, when one has to create something that has never yet existed, science must take precedence over industry -- only in that case can the normal course of scientific and technological progress be ensured.

Let us return to the events of 40 years ago when the USSR was handling the atomic issue. The first nuclear reactor required new materials, uranium and graphite as neutron moderator, with a minimum amount of admixtures. At that time we lacked both such materials and their production technology. We would have failed to cope with the atomic issue if at the beginning of this project we proceeded only

from the existing industrial capabilities. However, the project was made the responsibility of Kurchatov, Khariton, Aleksandrov and their colleagues, scientists worthy of the name. They had the final say on new plants and institutes, laboratory programmes and industrial research. In other words, science was the supreme decision maker with respect to new projects. Chernobyl is a tragic illustration of the opposite approach. When science had to proceed from production possibilities, this immediately sent down the level achieved and made possible decisions that were far from optimal. That is why we now accentuate basic research.

It is becoming a sign of the times that new chemical, electronic, nuclear and space technologies are increasingly generated by universities or firms whose senior research personnel have university education. In this respect, university education is seen as crucial for basic research.

After we have geared new technology quests to basic research, the next major step will be to replace the differentiated structures of raw materials and power production and use with integrated power-technology schemes employing synergic effects and more efficient and safe.

The organic world around us shows that the most compact and flexible systems consist of multipurpose components. As for the industrial structures developed by man, they employ the opposite principle, one of monofunctional components. This is illustrated by the macrostructure of modern industry, where the production of, say, power is separated in space and time from its transportation and use. All this makes a system very cumbersome and dangerous, provoking excessive flows of raw materials and power.

Combining processes holds great prospect. For instance, the nuclear reactor can simultaneously produce heat, electricity, and useful nuclides and radiations for medicine and technology.

Combined systems easily synchronize processes and even out workloads. Another major characteristic of a

technological society is an emphasis on chemical processes at the expense of mechanical procedures.

It is a good news that, showing the profound understanding of this question, the Politburo of the CPSU Central Committee has decided on the priority growth of the leading sectors of chemistry and technology.

All of us know well the present with all its pros and cons and have a more or less clear idea of what our future can and should be like. The main question on the agenda is how to organise a rational transition from the unsafe and critical present to the future. As regards disarmament, strategy has beer formulated and proposals advanced. What is left here is tactical struggle for the rational, a struggle difficult yet comprehensive as far as its arsenal is concerned.

Now take technology. While the nation is restructuring its activities in all fields without a single scenario, enterprises and institutions and larger structures , some of them probably unnecessary, are also restructuring themselves. Committed to restructuring, such units expend resources on goods and services that leave customers indifferent.

We have stepped up efforts across the board. However, often we proceed from the experience which, important as it is, is not decisive for the future of technology.

Our colleges train specialists, say, in timber chemistry, tunneling machinery or rare and dispersed elements. We need such people who eventually become good professionals. However, we do not train experts in broad fields, such as safety, transitional processes or deployment. Such experts are indispensable for the current transitional period.

The targets of our sectors and enterprises, new and those being reformed, are fixed in terms of money or physical units. This system of targets will not give us technologists and managers for the future technological

society, who will have to rely on innovation and initiative.

The lack of synchronisation in restructuring processes at the level of enterprises and agencies is a major defect. Not infrequently, the success of a producer does not lead to a favourable macroeconomic effect because his suppliers or clients are not as successful.

Most executives fervently hope in the projected reform in management and administration. However, performance-related leverage is no cure-all.

We must also have a brain trust to direct technological innovation and update the scenario of transition from industrial to technological society. I for one think that only technology and performance-linked personnel policy will take us into the 21st century.

(Pravda, October 5. Abridged.)

Realities of Socialism

TECHNICAL REVOLUTION: BOON, NOT BANE FOR THE WORKER

All the industrialised countries have lately been redeploying their production, because they have to sort out the sunrise from the sunset industries. Microelectronics has given the greatest scope to automation; flexible production systems, robots and low-manned and unmanned technologies are being introduced. The new-generation technology could help to release man from monotonous, arduous and noxious labour, but in the capitalist world the current industrial revolution mostly has painful social consequences in store for the working class: the number of jobs is sharply shrinking and the working people's rights are being attacked. The picture of the political struggle in the imperialist countries is largely determined by mass unemployment, which does not disappear even when there is a temporary economic recovery.

Socialist social production is also undergoing deep technical changes. What are the consequent social problems and how are they being tackled? The answers follow.

From the Society's Standpoint

RATIONALITY SQUARED

By the end of 1984, the USSR had more than 200,000 mechanised flow and automated lines (160,500 in 1979), and more than 100,000 sections, shops and lines of production with complex mechanisation and automation (83,500 in 1979). Within a year, 11,800 metal-cutting numerical-controlled machine-tools were installed, over 80 sections and shops equipped with industrial robots, and 20 complex-automated sections for the mechanical treatment of components were created.

(Data from Soviet Statistical Yearbooks)

The USSR's scientific and technical policy and its social consequences are described by Professor A.F. Kamenev, deputy chairman of the USSR State Committee for Science and Technology, and Professor L.E. Kunelsky, administration head at the USSR State Committee for Labour and Social Matters.

The bourgeois mass media keep saying that there is a striking contrast between the persistent mass unemployment in the industrialised capitalist countries and the full employment in the countries which are members of the Council for Mutual Economic Assistance (CMEA) because the latter are allegedly technically retarded and have a low labour productivity which results in an artificially high level of employment. Is that so?

L.E. Kunelsky. Indeed, bourgeois propaganda has kept making the primitive claim that we have latent unemployment. It cannot be right if only because it is used to blanket the whole of socialism as a social system. But the fact is that every socialist-community country has industries with high technological standards (which are often the highest in the world) and also lagging sectors. Seeing only the latter and saying nothing about our society's achievements in other fields means deliberately trying to distort the reality.

The USSR has a vast scientific, technical and economic potential, but our party is perfectly aware of the importance of the revolution under way in production today and has been giving the most serious attention to its further development. It has kept stressing that the pace of scientific and technical progress in the country is not high enough, that it is somewhat flabby and more evolutionary than need be. It was said

most emphatically at the Plenary Meeting of the CPSU CC in April 1985 and at a conference on accelerating scientific and technical progress held at the CPSU CC in June 1985 that we can no longer be satisfied with partial modernisation of plant and retooling or with some improvement of installed technologies. There must be broad introduction of the latest-generation hardware and high technology, i.e., there must be revolutionary changes in production.

The draft of the new edition of the CPSU Programme sets the task of completing comprehensive mechanisation in all the sectors of the production and non-production spheres and taking a major step in the automation of production, with a transition to automated shops and plants, and automated control and design systems.[1] Labour productivity is to be considerably increased through accelerated scientific and technical progress, radical changes in hardware and technology and the use of other factors in intensifying production: within the next three five-year plan period labour productivity is to go up by 130-150 per cent.

Will that not jeopardise the working people's full employment?

A.F. Kamenev. No, it will not, although we are aware that the electronic era will present many problems in a totally different light. Some Western futurologists expect automatons

[1] See The Programme of the Communist Party of the Soviet Union (New Edition). Draft, Moscow, 1985, p. 38.

to "devour" up to 65-70 per cent of the jobs by the end of the century. Indeed, some of the giant corporations expect to do without 95 per cent of their workforce by as early as 1995. That is, of course, an expulsion of living labour by objectified labour on a scale that has never been witnessed before. Let us recall, however, that it is a process which Marx foresaw as he was working on the rough draft of his Capital. He also welcomed it because he was sure that it would mark the transition in the socialist society from the "realm of necessity" to the "realm of freedom", as man discovered himself and his creative potentialities and began to live in dignity.

For all our historical optimism, we are naturally aware that such a massive release of manpower is bound to create practical problems which our generation and future ones will have to cope with. The problems are bound to arise, but we are safeguarded from the major disproportions in economic development and the "social dislocations" attendant on the current revolution in science and production in the capitalist world by our planned socialist economy and by our complex scientific and technical policy.

Let us recall, by way of example, that in pursuance of the decisions of the 26th Congress of the CPSU (1981), Soviet planning and economic agencies worked out a number of state-wide complex programmes (notably for automating engineering and other sectors of the economy), tying into one system the solution of many problems, ranging from the pursuit of a coherent scientific and technical policy, planning of research

and development projects, and the engineering of new ideas, to the use of the advantages and potentialities of the international division of labour.

Let me add that the programme approach helps to concentrate resources and funds on the crucial lines of technical progress, but it does very little to guarantee against any painful social consequences. Take the national robotisation programme in Japan, where unemployment has been markedly increasing over the recent period. Under socialism, goal-oriented planning is complex in the broadest sense of the word, for it includes the social aspects of development as well. Solution of the problem of manpower resources and the training and retraining of personnel for the mooted projects is an important part of Soviet programmes; the technical and the social aspects are worked on by the planning agencies in organic connection with each other at the earliest stage, when it is already possible to foresee the processes connected with employment and to regulate them in the interests of the society.

Socialism has a clear advantage in making it possible to consider technical, economic and social development in each other's context and to assess its effectiveness not only within the individual enterprises, however large these may be, but also within the national-economic complex as a whole. Let us consider, for instance, why we decided to start with the automation of engineering, although its cost-benefits (per rouble of capital investments) are only a third of those in, say, the

automation of management? We did so because the remodelling of engineering provides the basis for a radical renewal of the other industries, so that we are entitled to expect a multiplication of the economic effect later. In other words, under socialism the technical re-equipment of production, its modernisation—which the bourgeois media designate by the general term of rationalisation—can be rational to a very high degree: not only in terms of the individual technical and economic returns, but also on the scale of the economy as a whole, which means an additional benefit from the higher economic level in various allied industries, better social relations.

The alpha and omega of Soviet economic strategy is putting the best modern hardware and technology at the service of man. We are convinced that, given a well-considered and balanced implementation of this policy in the socialist society, there will be no major spontaneous movements of manpower, let alone social tensions.

L.E. Kunelsky. Our social system makes it possible to keep raising labour productivity without limits, to economise on labour, and still maintain full employment because production is not being developed for the profit of a limited circle of persons, but for the steady raising of the whole people's well-being.

There are no limits here of any kind: new wants—both material and spiritual—are being generated all the time, and

since their satisfaction is not being impeded by any objective barriers in the form of the interests of capital and the exploiter classes, a job will be found for everyone to apply his energies and capacities. Scientific and technical progress, a mighty instrument for attaining the required goals, is similarly boundless. In other words, under socialism the objective possibility of everyone doing socially useful work springs from the combination of boundless growth of the working people's wants and boundless scientific and technical progress.

There is no reason for us to maintain a high level of employment artificially, because the requirements in labour and the potentialities of its useful application under socialism are virtually inexhaustible. On the contrary, we seek to economise on labour in every possible way. In the USSR, for instance, wage increments are offered for the acquisition of multiple skills, extension of the area of operation, operation of several machine-tools, and so on. Advanced labour organisation methods are being ever more widely used to induce the work collective to shed redundant manpower, but here the reserves are still considerable, and we are saying this for all to hear: here and there the economic mechanism fails to work as it should, here and there redundant manpower is still kept by aging plant and machinery. So we are seeking ways for an in-depth restructuring of economic management, and have pilot schemes going by way of experiment in getting enterprises to fulfil assignments with a minimum of personnel.

A few years ago there was a broad response from the Soviet public to what was called the Shchyokin method, an attempt to organise production on new lines at a combine near Moscow through a multiple-trades arrangement, and similar experiments were also staged in the laying of gas pipelines and in other industries. In the tenth five-year period alone, 6 million workers were "released" from Soviet industry, and 3 million from 1980 to 1984, but the "release" is purely tentative, because they move from one workplace to another, from an aging to a more modern one, so that there is no question at all of any unemployment.

Let me add that reactionary bourgeois economists and politicians try to explain the sharp growth of unemployment in the capitalist world today by insisting that it is "structural". They suggest that along with the mass of low-skilled labour ousted by automation from production, the labour market offers vacancies for higher-skilled trades, such as servicing fifth generation computers. They also refer to what is known as technological unemployment, i.e., the general reduction in the number of jobs requiring unskilled labour. Both these types of unemployment, they say, are the "inevitable" costs of economic and technical progress, which socialism cannot avoid either. Indeed, they assert that the Soviet government's measures to mechanise and automate production have also gradually produced unemployment in our country and the formation of a reserve labour army.[2]

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[2] See A. Abouchar, Economic Evaluation of Soviet Socialism, New York, 1979, pp. 11-12; Alec Nove, Political Economy and

Let us note that this charge is the very opposite of the "latent unemployment" charge, but bourgeois Sovietologists have never been famous for wincing at the contradictions in their own constructs. It is absurd to talk about some technological unemployment in the USSR. What we do have is a shortage of personnel in some ultra-modern fields, but the socialist society has extensive potentialities for taking account of the existing requirements for various occupations on a state-wide scale, but also for arranging for their training accordingly. That is what we have been actively doing, offering knowledge about the latest advances in microelectronics, informatics and robotics, not only to young people about to enter production, but also to experienced engineers and managers. As for some surplus of unskilled labour-power, any personnel department will tell you how hard it is to find an office cleaner, a hospital attendant, a general worker or a boiler-man.

A.F. Kamenev. Generally speaking, there is now hardly any problem in providing jobs for those who are made redundant by the introduction of new hardware and technology. Indeed, we have a palpable shortage of manpower, and while the "vacuum" is being filled, we have enough time to work out a conception for the future.

Soviet Socialism, London, 1979, p. 162-163; M. Moskoff, "Part-Time Employment in the Soviet Union", Soviet Studies, Vol. XXXIV, April, 1982, p. 270.

But, metaphorically speaking, Monday starts on Saturday, wouldn't you say?

L.E. Kunelsky. It has already started. Just now workplaces in the USSR are being rationalised and certified, which means bringing in more order and simultaneously "taking stock", without which no solid strategy for the future can be worked out: after all, the first thing to do is to find out exactly what we have at our disposal. Special competent commissions made up of members of management, trade unions and medical specialists assess every workplace from the standpoint of working conditions, productivity and the skill standards required, in order to certify the workplace as being economically warranted, necessary, up to the required labour hygiene standards and so worth keeping. Very often the decision is a different one: the workplace is to be wound up or remodelled, i.e., additional funds are to be put in so as to change the character of labour and to raise labour productivity, provide greater safety, and so on. This kind of "stock taking" helps to give a more precise idea of the number of truly necessary workplaces and so to put the labour-resources balance on a solid basis. The certification was first carried out at engineering enterprises in Moscow, Leningrad and Kuibyshev and Dnepropetrovsk regions. A special decision was taken by the CPSU Central Committee recommending that such a certification should be carried out throughout the Soviet Union during the 12th five-year plan period

under the direction of the State Planning Committee and our own committee.

What happens to the manpower made redundant in this process?

L.E. Kunelsky. As I have already said, the "redundancy" is purely tentative. Just now, for instance, entire sections at many enterprises are left without manpower because young people with a ten-year education are unwilling to do arduous manual labour. When such a section is automated, a given number of workers is made tentatively redundant, but in actual fact we are merely making good the labour-resources deficit either at the enterprise itself or elsewhere. Since there is a shortage of manpower almost everywhere, any person made redundant as a result of staff outs is offered a wide range of jobs by the management.

A few words about the wide network of job-placement offices. These were first opened in the early 1960s, and some bourgeois Sovietologists suggested that they were a signal of growing "technological" unemployment in the USSR, so that labour exchanges had to be set up to register the unemployed and to help them to find jobs.[3]

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[3] See Industrial Labour in the USSR, New York, 1979, p. X.

Only someone who has a ridiculous notion of the actual problems of employment under socialism or a deliberate liar can claim that the job-placement offices are connected with "technological" or any other form of unemployment. The establishment of such offices is not evidence of unemployment but, on the contrary, of an urge on the part of the state to ease the labour shortage by helping those who want to switch jobs do so faster.

Such offices operate in all the large and medium-size cities and in many smaller populated localities. They have all the information of manpower requirements, and provide it to applicants free of charge, the cost of the service being defrayed by the enterprise in demand of manpower. Every applicant is offered a choice of jobs, with an eye to his or her training, place of residence, expected wages, and so on. Barring some kind of exceptional demands, applicants spend little time to find a suitable job. Experience shows that these offices help to reduce job-switching time by an average of 8-12 days, and on the scale of the whole country this means adding something to the actual time worked.

Some working people join organised groups to work at construction sites, especially in the eastern parts of the country, where various benefits, such as higher wages and longer holidays, are offered. Such forms of organised recruitment of manpower also help to control the social effects of the technical restructuring of production.

JOBS MAY BE REDUNDANT, PEOPLE--NEVER

Thirty-four year-old Klaus Kaszmarek works at a feed factory in the small town of Westeregeln in Stassfurt district near Magdeburg. In recent years, he has twice changed jobs, and feels that that is normal. First he was a tractor driver, and then a metal-worker in a new section set up to fabricate the means of rationalisation. It was set up, among other reasons, in order to make technical improvements in production and to release some of the workers in basic production for other purposes, namely, to improve supplies on the domestic market[1] by starting the production of fruit juices and concentrates. There is a large demand for juices in the GDR. Kaczmarek liked his new job and was vigorously working on it. He then began to operate one of the presses whose potentialities he had by then got to know very well and which he could use to the full. His earlier job in the rationalisation section was taken over by another worker.

The new production potentialities naturally enabled the factory to increase its output. Kaczmarek is, of course, aware not only of the benefits the restructuring has yielded for the enterprise and the national economy as a whole: he himself has also gained. First, he now has a higher skill rating and so his wages are higher accordingly. Second, his work became more

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[1] The Socialist Unity Party of Germany (SED) seeks, wherever possible, to have enterprises not working directly for the domestic market start the production of consumer goods.--Ed.

interesting as he saw more clearly the technical links within his production. Nor does he feel that he has reached the top, and regards his job as merely a springboard to new knowledge and experience. Third, the factory has helped him to build his own house in Westeregeln, and that is a sure sign that he has decided to settle down in the place. It also means an addition to the body of hard-core workers, which are the mainstay of production, and whose energy and inventiveness keeps it going.

That story is no exception; many others in Westeregeln think and act similarly. Thirty-two-year-old Jürgen Doebber, a farming-maching engineer, was appointed technical superintendent at the feed factory immediately upon graduating from his institute. He showed an interest in rationalising production and began to make improvements on the above-mentioned juice-production line. He is now in charge of it. Doebber believes that the enterprise has made much headway because more and more of its workers value it as a place where one can earn good money, but also creatively apply one's capabilities and get on. That is what gives one a sense of accomplishment.

Here is yet another example of a working class career. Horst Biernoth was first a driver and a tractor-operator at the agricultural cooperatives near Westeregeln; he then took charge of the transport department at the feed factory. He also helped to arrange the production of juices. He then stayed on at the factory as shift head, which meant more responsibility, and also more satisfaction.

These three workers were vigorously involved in rationalisation and so advanced in their careers. However, production does not change fast enough for everyone to be able to get interesting jobs all at once. What about those whose job has been "devoured" by rationalisation and who were forced to shift "horizontally"?

Günter Meier, director of the combine of which the feed factory is a part, says: "For one thing, we have a good talk with each of these workers and try to explain the benefits rationalisation has in store for the society as a whole. Each was given enough time to make a mental adaptation to the change. No one was left jobless, because the indefeasible principle of socialist rationalisation is that jobs can be redundant, but people--never."

This kind of approach is highly important for the GDR, which has no surplus manpower, and rationalisation helps to tap the labour reserves, including those at one's own enterprise. That, in turn, helps further to modernise the plant, to start more modern shops, and so again discover labour reserves.

An example for the whole republic was set by the petrochemical combine at Schwedt, where various measures helped to release 2,000 workers for use in new production operations. The retraining was painless because the party and the trade union organisations and the management were perfectly aware not only of the technical and economic aspects of the matter, but also of the equally important human aspect.

Capitalist rationalisation ignores the social aspects of the problem, for profit and nothing but profit is the

yardstick of success: the redundant workers are ejected into the street without more ado. Schwedt provides a good example of the fundamental distinctions of rationalisation under socialism, for here there is an awareness of the importance of convincing--in good time--the person whose job is made superfluous by technical progress so as to win his consent for the job switch in the wider social interest. That is taken into account at the combine and everything is done in advance to prepare those concerned for new jobs.

The Political Bureau of the SED CC has recommended the Schwedt combine as an example to be widely followed in successfully blending the economic and social policy of the party and the state and so advancing the growth of the GDR's economic strength.

The recommendation was treated with a sense of responsibility at Stassfurt: the technical measures serving to raise labour productivity and reduce the number of workplaces are planned well in advance so as to give time to discuss everything thoroughly and without haste, and to solve all the emergent human problems.

Werner Behrend, a member of the district council on labour matters, says: "The final decision on any transfer is taken only after everyone whom it concerns has understood the meaning of what is being done and accepts it, and when all the production and social matters involved in the transfer have been stipulated."

Chairman of the district council Rudi Grams says: "Our

district's five-year plan for 1981-1985 provided for a growth of net product by 52 per cent, with the same number of workers. It could be fulfilled only if labour productivity went up and fixed assets were put to better use. That called for a restructuring of production and a switch of many people to new workplaces."

By the end of 1984, such transfers had already affected a total of 1,700 persons, of whom 1,300 switched jobs within the enterprise itself. Where did they go to? Most of them—305—were appointed to departments turning out various attachments and contrivances helping to improve the equipment; 234 persons operate newly installed hardware at Stassfurt enterprises; 126 work in preproduction departments; and 122 are engaged in the installation of electronic devices and robots.

Roughly a quarter of them (322) have been transferred to other shops so as to improve the running of modern highly productive machines.

Finally, 191 persons were transferred to shops set up under a SED decision to produce consumer goods: fruit juices, household plumbing fixtures, boilers, aerials, camping equipment, and so on.

The Stassfurt district added many of its own features to the Schwedt combine's initiative. Rudi Grams explains: "We were clearly aware of the high demands made by the party's new economic strategy on the district organs of power. After all, the task of intensifying production is not limited to development on the shopfloor. It also affects life in the cities and communities, transit, the services, merchandising and supply.

That is why rationalisation, both at the centrally-run enterprises and in the district's public utilities should, we feel, be carried out in a concerted way, so as best to secure high economic growth, the basis of any social progress."

Wolfgang Grötschel, chairman of the district planning committee and a member of the SED district committee secretariat, adds: "When conducting the party's line, the local organs of power, on the one hand, create favourable conditions for the work of the enterprise collectives, and on the other, seek to improve in a balanced manner the living and working conditions of the population, erect housing (the main element of the SED's social policy) and develop agricultural production."

The local council helps to fulfil factory rationalisation programmes and to give them much a scope as to make it possible to use some of the redundant workers elsewhere, in places where the demand for manpower is especially great, with no local possibilities of meeting it, as in the agrarian sector, in the services, or on the railways.

The council began by specifying the district's requirements in manpower. These data, with a precise statement of skills and occupations, expected place of work, and deadlines for filling vacancies were circulated to the Stassfurt enterprises, an approach that makes it possible to place people according to their occupation while taking care of the social interest. Here is one example. Werner Ouno was lately a transport worker at an enterprise mining potassium and rock-salt, but had once

trained as a shoemaker, and shoemakers are scarce in the villages round Stassfurt. When his workplace was up for reduction, a commission consisting of representatives of the plant, the district council, the trades chamber and social organisations had an interview with Cuno and advised him to open a shoeshop in the rural community of Unseburg. All the social security matters were clarified, and a credit was arranged for the start-up. Cuno took the good advice, took out a permit to ply the shoetrade, and equipped a shoeshop with the support of the state agencies. It is now very popular, and shoe-mending is done on the spot.

As a rule, people are more willing to take up other jobs when the social meaning of the move is clearly explained to them. So, on the council's initiative or through its mediation, 103 persons have moved into agriculture, 95 on the railways, 24 into private or cooperated trades, and 34 into the services; 111 have been sent to work at the Stassfurt "Friendship School", where about 900 young people from Mozambique are being educated and trained in various skills. It is the district's contribution to the cause of international solidarity.

The attention of the Communists and the local organs of power is focused on man with his social and personal interests. Our republic's development has been stable and dynamic precisely because the policy of the socialist state starts from the well-being of the people.

Günter Fleischmann,
GDR journalist

What Trade Union Activists Say

GUIDED BY THE PRINCIPLES OF SOCIALIST HUMANISM

A staff member of the WMR went to some Budapest enterprises to canvass trade union opinion on the spot concerning the social aspects of applying scientific and technical achievements to production.

The shipbuilding and cranebuilding works in Budapest is a large enterprise with a workforce of 8,000. It turns out tugs, barges, sailing ships, floating and stationary port cranes and containers. It consists of several shops, three of which are situated outside the city limits. Laszlo Balla, secretary of the trade union committee for organisational matters, says:

"The reconstruction of the Budapest part of the works began in 1978 under a project submitted by Leningrad specialists, and it is state-of-the-art, when, compared with similar other enterprises in Europe. Since the modernisation was undertaken in the context of the overall specialisation of shipbuilding in the countries which are members of the Council for Mutual Economic Assistance (CMEA), we obtained a credit from the International Investment Bank.

Did the reconstruction entail the winding up of workplaces?

That is the wrong way to formulate the question. The collective began the reconstruction mainly because of the labour shortage. The shortage of personnel is a constraint on the further

development of production.

Why is there such a shortage of shipbuilders here? Shipbuilding in the capitalist states of Europe is, after all, in a state of deep stagnation or even recession, and workers there are being sacked in batches...

The outlook in shipbuilding and cranebuilding in the CMEA countries generally, and in Hungary in particular, is quite different. If our combine now had 1,000 workers more, we would even then have hardly met the demand for our products. Our orderbook is not only full all the way up to the year 2000, but we have had to refuse some orders from the Soviet Union, our chief customer.

Now about the "scarcity" of shipbuilders. You see, next to mining, shipbuilding is physically the most arduous form of production, and it is not very attractive for someone who can afford to choose. It is true that we have already done much to lighten the work: in the past, for instance, the ship's hull was assembled in the open air, and now there is a roof above. The arduous manual operations have been reduced from 80 to 40 per cent in the overall process. We have even dropped from the collective agreement some of the points on the improvement of working conditions as already being a past stage. Nevertheless, it is still not easy to recruit skilled young workers.

For the same reason, there is a high personnel turnover: in the past three years alone, almost 1,000 have left, and that is a fifth of all those working in the Budapest shops. It is

hardly realistic to expect someone to come in and fill the gap, so technical reconstruction is the only way out.

What consequences has reconstruction for the workers?

Iozsef Karlbauer, chairman of the trade union committee of the Budapest section of the works, and S. Kalman, chief shop-steward,[1] explained:

"It calls for additional knowledge, the learning of allied skills, and an ability to handle new hardware, notably computers. Progressive technology requires the worker to be more than a welder or an assembly man; he must have an idea of the whole production process from beginning to end. A total of roughly 800-1,000 persons have either been retrained or have acquired higher skills at the plant.

How is retraining arranged, who pays for it and how do the workers regard it?

Chief shop-steward Laszlo Farkas replies:

"The works has appropriated for these purposes roughly 9-10 million forints (including the cost of the production which the worker could have turned out in the time he spends at the retraining courses, for the retraining partially proceeds during the working hours). Some are quite willing to learn, but many have to be persuaded. After all, everyone has a house and a car, and opportunities for good extra earnings

[1] In accordance with the rules, trade union groups (from 5 to 50 persons) elect shop-stewards, who, in turn, elect the chief shop-steward (and his deputy) of the primary trade union organisation which brings together several trade union groups.--Ed.

after working hours. That is why, to be quite honest, there is no sense of special enthusiasm, for all have present skill training and that on a fairly high level."

The conversation was joined by shop-steward Laszlo Gasdik:

"All sorts of complications may arise. I myself, for instance, am a repair worker. In our shop we have many painters, metal-workers and so on. Some have agreed to retrain in order to master yet another trade at the expense of the state, and then move into the service sphere. Is that bad? It is bad for the works, but one could say that the state is not at a loss in any way: the demand for everyday services has been growing steadily.

What is your role as trade union activists in the restructuring process?

Shop-steward Istvan Czepin: "In accordance with the labour legislation in force in Hungary, any transfer to another job requires the endorsement of the trade union organisation. We also have the rule that if earnings temporarily decline in the new job, the worker should not lose any wages. He is given a period of time to adapt to the new conditions."

Still, conflicts with the management cannot be altogether ruled out.

Laszlo Gazdik:

"Difficulties arise, for instance, when someone is transferred from the old and smoothly working collective into a new one where the people still have to adjust to each other, and

earnings are on the whole lower. In such cases, workers frequently object, and then it is up to the shop-stewards to sort things out and sometimes to argue with the management in defence of their interests."

Have you, in fact, had any cases when someone has been left without a job?

Laszlo Balla: "Yes, it happened once in 1983, and not because of technical reconstruction, but because the conditions on the world container market had worsened. Instead of the usual 3,000-4,000 containers, we managed to sell only 1,500 that year, when some developing countries started turning out containers. Some 150 workers at our branch in Vacz found themselves idle. A part of the operations previously performed in other sections were transferred to them, but that took care of only about 60 per cent, so that a temporary solution had to be found for the others: they were bused 30 kilometres to another branch making ship tugs. The works took care of the transport costs, and the output norms were lowered for a period of three months because the workers were not used to them. The trade union committee took care of the dressing rooms, provided good meals, etc."

How much economic sense did that make?

Laszlo Balla: "Well, it did cost the enterprise some money, if only because two hours of the six-hour working day

were spent travelling. The works decided to have this arrangement mainly for social reasons, but also because the tugs are an important export item. That was, I repeat, a temporary solution until the marketing of containers was restored."

* * *

At the Printed Silk Combine in Budapest, rationalisation involves not so much technical equipment as the organisation of production in new lines. It was decided to merge two mills (there was not enough manpower for both) and to arrange things so as to raise productivity and so boost output. Some 400 of the 1,500 employees were to be transferred to new jobs.

Trade union activist Lajosne Racz says:

"When it became clear that one of the mills was to be closed down and its workers used elswhere, a meeting of shop-stewards was held. They decided that the first thing that needed to be done was to find out how many persons and what kind of trades were to be affected. Representatives of the trade union, the party organisation and the combine personnel department set up special commissions in order to ease, as far as possible, the difficulties of transfer for everyone and to prevent it from becoming an unpleasant shock. The task was not too difficult because the two mills had kindred production."

But even if one knows the job as such, it still takes time to work out new reflexes, skills and something like automatic gestures. The shop-stewards persuaded everyone concerned

that at the new place they would have good working conditions, and that they would be well established in the other collective as well.

Why did some not want to be transferred?

Iozsefne Sebesttyen: "They were accustomed to the old place, for some of them had worked there for 30 or 40 years."

How did you manage to break the psychological barrier?

Lajosne Racz: "In personal interviews, the commission offered each woman a choice of two or three jobs. The transfers were to be effected in June, but we began to train the printers who were to be transferred in December of the previous year."

Iozsefne Sebesttyen: "The trade union arranged visits to the new shops and teams to give an idea of how things stood well in advance."

Iozsefne Czina: "The shop collectives were looking forward to the arrival of the new workers and the atmosphere there turned out to be very favourable. Every new worker was given a tutor with enough production experience to help her get the hang of things."

How were the money matters settled?

"In accordance with the law, anyone who was transferred to the new job retains all his social rights and privileges, and continued seniority. If time wages are paid in both places,

only the size of the bonus can be different. That is why in the first three months, the mill paid a subsidy for the bonus. Those who had to be retrained were paid average wages up to the old level for a period of six months."

* * *

Sandor Szilagyi, deputy director of Hungary's Trade Union Research Institute, added to what the trade union activists had told us.

In 1983, Hungary's Council of Ministers decided to pay a cash compensation to those whom management has to transfer to other work for reasons of production. Does it mean that such transfers are fairly massive?

Yes, the fact is that production is becoming ever more efficient, and for various reasons the structure / of our national economy tends to change. This is connected, first of all, with the general situation in the CMEA countries and the state of the world market. The production of some goods has to be discontinued and new products turned out, which means inevitable changes of profile, the merger and even the shutdown of some shops or enterprises, and so, inevitably, the transfer of manpower and its retraining.

The Hungarian trade unions believe that the time to take care of job placement and retraining is not when the restructuring is fully under way, but well in advance. We also know that change of workplace tends to produce some stress for those involved, and if the transfer is not on one's own initiative, there may even be a sense of grievance. It is not always / pos-

sible to avoid these emotional moments, but the material aspect can always be settled most satisfactorily so that there is fairness in this area at least. That is why a new compensation law was passed on the initiative of the trade unions. It provides that anyone transferred to a new place because of the requirements of production is to receive average wages at the old place of work for a given period (depending on how complicated the retraining is; in some cases it could last for one or two years).

In Hungary this general principle applies: a person may be transferred to another place only with his consent. If you object, you turn first to the labour grievances commission and then, if you insist, apply to a court (free of charge). If the trade union is on your side and thinks that you are right, its law service will provide counsel. In extreme cases the trade union even has the right to veto a management decision which it considers to be wrong, and then the management cannot do anything until there is a ruling by the court.

The trade union sees to it that old people, sick people, those who have many children, or people who are restless and whom the management finds "inconvenient" should not be dismissed on the pretext of a reduction in the number of workplaces.

Do the rationalisation of production and the consequent collective transfers of working people produce any conflicts? If they do, how are these settled?

I recall one such case at the Gyorg carriage-building works: it was reported in the press and the situation there was examined by party organs. Several hundred jobs (out of a total of almost 10,000) were wound up on the management's initiative, with everyone up for transfer being offered a place at the plant. About 100 workers refused to be transferred, and these were mainly office workers who did not want to do manual work. The trade union committee made a thorough examination of the matter and agreed to the dismissal, but added in its ruling that the management had made a mistake: shortly before the reorganisation, it had taken on an excessive number of clerical workers, and so the mistake had to be corrected in a very unpleasant way. Because all managers of social production in Hungary are regularly endorsed by the collective, such an assessment by the trade union committee carries a lot of weight.

The shop-stewards have said that the state takes care of the costs of retraining. How is it organised?

The mechanism of the manpower transfer is based on the fact that the retraining is of interest above all to the enterprise getting the new labour. The management of an economic unit releasing manpower has to give due notice of this to the local council, while the actual costs of retraining are borne by the enterprise to which the workers are being transferred. The local council later includes this amount into the tax the enterprise has to pay into the state budget, so no one is worse off.

What is the ratio of job-seekers to available workplaces?

There are no official statistics of this kind. The enterprises short of manpower rarely act through intermediaries, which is why the job placement offices do not have all the data. But according to them, there are roughly 10 openings for every applicant, and according to the newspapers which carry notices of vacancies, the ratio is even higher: 20 to 1 or even 30 to 1. One should also bear in mind that people looking around for jobs already have one, merely wishing to make some improvements, such as work closer to home, do something else, have higher wages, etc.

Could the massive transfer to high technology subsequently alter the situation and give the employment problem a new twist?

Very much is now being done in Hungary to develop microelectronics and robotisation, but the era of this progressive technology is only just dawning in some industries. Shall we have to face more acute social problems when automation gets into its stride? I am sure that we shall not. First, not very long ago, when robots and flexible production systems were few, the industrialised capitalist countries had--qualitatively speaking--the same kind of production apparatus that Hungary now has. Did they not, at that time, have any unemployment? They did, indeed. And we do not. That alone warrants that as we advance along our own, socialist way, we shall be able to provide jobs for all our citizens even under the new technology.

Second, there are many outstanding economic problems in Hungary, and in the immediate period we face some major tasks, such as providing everyone, young people especially, with modern housing, improving the highway network, modernising the telephone system, paying more attention to onvironment protection, and so on. The people's requirements keep growing. There is so much to do that there can be no question of unemployment. At present, even the question of a further reduction in the working week is not being considered. No matter how much manpower the "clever" machines may make redundant, our planned economic system will find place for everyone to apply his or her capabilities for the benefit of the society as a whole.

* * *

Technical progress alters the destinies of men: of dozens at a Budapest factory, of hundreds in a small German town, and of millions in the sprawling Soviet Union. Some move to another workplace, others even move to another town, but behind such changes under socialism there is no human tragedy, no loss of faith in oneself and in the future, as it happens to the men and women who lose their jobs in the capitalist world. The social certitude of the working people in the new society is rooted in their firm conviction that in it human beings and their welfare is the main thing under any kind of technical revolution!

TECHNOLOGICAL PROGRESS AND FRENCH SOCIETY

Rene Le Guen

Political Bureau member,
French Communist Party

On day-to-day life we encounter very different assessments of technological advances. For ideological reasons, studies and analyses in this field usually present excessively sweeping generalisations of the role played by the new technologies. Technological progress is therefore treated as something self-contained, independent of man and possessing a magic power one can only bow to. But in actual fact, the important thing is to ascertain whether the formidable advances of science and technology, a result of human labour, can play the role of a lever in the emancipation of man. Will the society of tomorrow be a world of domination and oppression or of freedom and prosperity? To answer these questions, one must begin by properly assessing the nature, scope, swiftness and areas of application of scientific and technological advances.

Rene Le Guen, an engineer by training, joined the FCP in 1944. Earlier, in 1943, he became a member of the General Confederation of Labour (GCL) which at that time, during the Nazi occupation of France, operated underground. Rene Le Guen has worked extensively in the trade unions. Elected to the FCP Central Committee in 1970 and, in May 1979, to its Political Bureau. --Ed.

If we reduce the development of science and technology throughout human history to the span of a single year, we will find that it took nine months to pass from the discovery of fire to the development of the first flint tools, while the latest advances--nuclear power, microelectronics and lasers--succeeded one another within seconds.

Also within seconds, metalworking plants and biotechnology laboratories will spring up on satellites and residential quarters on the ocean floor, and informatics will extend to all aspects of life and of the social fabric.

Currently, scientific output doubles within less than a decade; 90 per cent of the knowledge that is being applied has been acquired within the lifetime of the present generation.

However, man's attitude to technological change is becoming truly revolutionary, and a new quality of these relations is taking shape. The means of production not only require man to exert physical efforts but also increasingly imply the command of relatively new skills referred to as intellectual abilities.

Going beyond the framework of production itself, this evolution permeates all aspects of society and of personal life, be that communications, transport, health care, leisure or culture.

This reality does not entitle us to ascribe unlimited virtues to technological advances per se or to believe that they are capable of answering all questions and applicable everywhere, always and under any circumstances. In order to ascertain the potential of technological progress and the conditions in which it can ensure a new socio-economic efficiency, technology must be evaluated with due regard for the mode of production and the

evolution of society. This is the best way to avoid the trap of technological fetishism.

Science and technology are therefore not neutral either in essence or in objectives. At the same time, they bear no responsibility for the crisis--just as it is impossible to overcome the latter relying solely on the development of technology. A durable solution to the problem demands that the working people, the individuals who make up the nation master these new means. Their use can in no way be predetermined.

The position of women offers a significant example. New technology offers women great opportunities and access to all occupations and posts; it becomes a means of attaining equality. However, in the absence of vocational training, democracy and militancy, this technology may become a source of deterioration in skills and in living and working conditions.

The development of science and technology raises new problems connected with vocational training, with the content of labour, with the evolution of the interdependence between employment and skills, and with social relations.. The tasks to be tackled in these different spheres are inseparable from the need to revise the criteria of economic profitability and to enhance collective participation by the workers in the management of production.

More effective socio-economic management is our demand. Here, too, it is important to rely on the potential of the technological revolution and on the fullest possible use of its opportunities for the benefit of the masses. It follows that the

choice of technological solutions becomes very important. Organisation of work born of technologies oriented on savings, the type of the end product--in short, the very essence and purpose of new technologies--may, if not resisted, increase man's alienation. In that case, the principal goal of the Communists--a better life and a society suited to the new material requirements f all--will not be attained. To discuss the choice of technological solutions means, besides, to influence the essence of the technologies introduced. This implies a search for criteria applicable to new management forms.

This is what determines our attitude to the abuse of the concepts of "modernisation" and "modernity". Although we have general economic regression, some sectors are developing--but at what price and for what purposes?

Accelerated introduction of new technologies may be used as a means of enhancing financial profitability. On the one hand, this approach leads to short-term decisions that hamper long-term projects and the investments they require; on the other hand, it reduces man's role in production to functions that machinery cannot discharge yet. In this case, technological progress undermines employment, increases the labour surplus which results from an end to economic growth, and gives rise to new forms of exploitation of labour. It is proceeding from this approach that the seminar on "Prospects for 2005", organised by the General Planning Authority and France's National Research Centre in November 1985, concluded that it was necessary to use manpower flexibly.

Another approach is possible, implying that accelerated technological progress would be accompanied not only by a desire to save the means of production but also by increased expenditure on man, on his education and development. This would lead to a new economic upsurge, making it possible to influence the duration and content of labour and living conditions.

This second approach relies on the already available possibility to develop flexible technological systems centred on human intelligence.

We see that modernisation is far from neutral. But, although both poles of the alternative are quite clear, our position should not be converted into an absolute. The question is not that of supporting or opposing modernisation, or of invariably equating capitalism with decline and paying no attention to the development underway in certain sectors. The question is more profound: room for socio-economic efficiency must be wrested from the employers, and an alignment of forces essential for attacking the crisis of the capitalist system must be created.

In the course of this struggle between two concepts of society (one focusing on money and the other, on man), a large-scale ideological campaign is being conducted, its architects trying to prove that the rapid growth of technological progress allegedly erodes the social base of France's revolutionary party.

This claim prompts us to make at least three remarks.

First, nothing is predetermined in this sphere. The forms of production are changing, but this change is a product of human activity. It does not develop by itself but is connected with the evolution of society, and this ——————————→

evolution cannot be regarded simply as a consequence of technological change.

The second remark concerns the opportunities this very evolution presents for uniting the working people. In an age of rapid technological advances, the conditions on which manpower can be used demand a considerable improvement in the skills of each worker. The workers of today are different from the workers of yesterday. Among the skilled workers aged 45 to 54, only 25 per cent have a diploma or a vocational training certificate. But they are two and a half times more numerous among those aged 15 to 24.

The importance of intellectual work in human activity is growing steadily, as is the role of highly skilled workers. There will soon come a time when all workers have to be better skilled and able to work in several occupations. Aside from the new occupations that arise, the scope of the knowledge applied in the existing trades is expanding. Functions calling for the application of abstract thinking, logic and an analytical approach are assuming decisive importance in the activities of industrial workers, engineers, ordinary employees and managers. A time is coming in which not so much work by hand as work by brain will be necessary to master new technologies.

On a more general level, one cannot assert that what is happening affects only this or that occupational group whose numerical growth would give it primary or central importance. The process in question is affecting all types of human activity. It is a salient feature of the evolution of the productive forces that intellectual work is increasingly involved in production. These dynamics contribute to the emergence of a new "collective labour-

er" and call for cooperation, initiative and personal responsibility, challenging the existing social relations and the practice of delegating authority.

This collective labourer comprises all individuals directly cooperating in the same type of production and goes beyond the limits of a single shop, enterprise or industrial group. The expansion of subcontracted research, production and services; the application of informatics that tends to bring closer together and to unify previously disunited occupations; the increasingly close ties between research and production; and the need for pooling the efforts of those representing different types of labour within a single enterprise or group of enterprises--all this encourages contacts, exchange of experience and cooperation among hired workers with different skills and different approaches to many problems.

Such is the meaning of the evolution that is taking place. The important thing is to grasp all its opportunities in order to use them better in practical terms. However, it is perfectly clear that so far, this collective labourer is in the embryonic stage at many enterprises and in many sectors. Our "dual" society[1] is hampering a harmonious development of this collective labourer. The fragmentation in the world of labour is even increasing; specifically, the introduction of informatics into the services often creates "new" unskilled jobs.

These realities do not undermine the large-scale and effective unity we are striving for but, on the contrary, make it even more imperative. Due regard for the realities is the only thing that can ensure its effectiveness.

The third consideration concerns the role and the place of the working class in the changes underway. This class is obviously the object of particular attention. Some hold that social evolution leads to a gradual disappearance of the working class. Others maintain that it is "disintegrating and becoming difficult to discern"; they deny its role as history's conscious and central agent.

Those who subscribe to this view either ignore or refuse to acknowledge the fact that the existence of the working class is connected with the decisive role of production and with the social phenomenon of capitalist exploitation. Science and technology have now become basic to material production. Under these circumstances, to claim that the improvement of skills and the growing role of intellectual work lead to the disappearance of the working class means to link this class solely with physical work, not with production. Either the adherents of this viewpoint have themselves been deceived or they are deceiving others by denying a dialectical interdependence between the evolution of society and the changes in the working class. However, these changes are occurring continuously, their scope and depth proportionate to the scope of progress in knowledge.

Just as the working class is not disappearing, one cannot speak of the emergence of a "new" working class. Today, as in the past, this class comprises all who produce material wealth, who constitute collectives of workers creating value and possessing no means of production. Naturally, the forms of production, the nature of the wealth produced and the collectives of workers have changed, but this change was accompanied and made possible by the change that occurred in human beings.

Acquiring an intellectual content, the labour of workers is assuming new productive functions. The role and the place of the working class in the life of the nation are expanding, and the old hierarchical frameworks are changing. The components of the working class are diversifying and the opportunities of each are increasing.

The boundaries separating spheres of production and circulation are being displaced; conditions are being created under which the activities of certain categories of employees are becoming linked directly with industrial processes.

Thus the working class includes unskilled, low-skilled and high-skilled workers, the overwhelming majority of technicians, a / part of engineers, and hired salary earners.

Today, it is no longer possible to reduce the working class to industrial workers only--not only for numerical reasons but also simply because this is no longer true.

A working class more diversified and richer in composition is better placed to promote the unification of all social strata adversely affected, albeit to different degrees, by capitalist management and the crisis. The more fully the working class becomes aware of its essence as a class despite its diversity, the more vigorously it will be able to discharge this function.

This brings us to an important problem. A mere statement of the fact that the boundaries, significance and role of the working class are expanding and diversifying does not mean that the problem of class consciousness has been solved.

Indeed, on the one hand, the so-called traditional functions, occupations and social relations will persist for a long time to come. On the other hand, many technicians and engineers, while

forming part of the working class, are not aware of it and even deny this status--let alone have any concept of what the class struggle is. This stand stems mostly from the refusal of the social group of managerial workers / to identify itself with the working class. A feeling of belonging to a special and influential group is also fostered by the numerical growth of this category and by the fact that France is the only European country where administrative and managerial workers make up such a clearly defined and homogeneous social group.

The feature common to the work of technicians, foremen and engineers is that it combines intellectual efforts, know-how and participation in production. These workers apply and develop the advances of science as a productive force. The evolution of their role reflects the rapid expansion of each of these functions, confirming that they make up a special category of intellectual workers.

The diversity of this group is connected with the growing role of intellectual activity in all spheres of production, with the rapid change in the nature of occupations and in the knowledge

they require and with the increasing differences among and within the relevant functions. The numerical growth of these workers has been spectacular. Today the nation has 900,000 technicians, about one million engineers and persons of a similar status, and some 600,000 foremen.

The technicians have registered the greater increment. This numerical explosion reflects the emergence of a function that is useful and essential in modern production. The employers try to denigrate its role, but recognition of its autonomous function which is neither transitional nor transient should be regarded as one of our society's major questions.

The number of engineers and professional technicians doubles every fifteen years. This growth is accompanied by a vigorous diversification of their functions brought about by the changes in the system of production and by the employers' desire to restructure it and to accelerate the concentration of technical facilities and industrial capacities. This is why the partial replacement of workers with engineers and technicians is an in-depth process underway within the work force. The crisis merely serves to accelerate it, reducing the demand for the labour of workers more swiftly against the background of falling employment.

The number of foremen has stabilised over the past 15 years. The introduction of new technologies has changed their traditional role drastically. The employers' ideological pressure on the foremen remains very strong, but the results are not commensurate with the effort exerted.

Employees and professional managers have also become more numerous in industry, services and government agencies.

There are now 4.2 million employees performing diverse functions. They include 1,600,000 public servants, two million administrative employees at enterprises, and 600,000 people employed in trade. The unity of the group rests on their common work and common identity. They are chiefly young people, most of them women who are the first to suffer from exploitation and oppression.

Managerial workers number more than two million. The increase in their ranks, as in the case of employees, is rooted in two factors. In industry, construction and transport it stems from the fact that the growth and increased complexity of production enhance the role of management and marketing; in banking and the insurance business it is caused by the rapid expansion in the volume and variety of the services provided by government agencies.

Aside from the great size and diversity of the professional managers' group, they also share another distinctive feature: they operate at a distance from production. Hence their abstract and distorted ideas about and lack of understanding of the working class and its struggle. Dealing mostly with questions related to the circulation of capital, management and supply, this cadre views / issues of improving and changing labour processes only from

the angle of distribution. Still, whatever their category, all working people are affected by the crisis, and the managerial cadre as a whole is no exception. From January 1985 to January 1986 the unemployment rate among managers increased 9.2 per cent, while the figure for technicians was 4.6 per cent. Young people make up 40 per cent of the jobless managerial workers.

A recent study by the Bureau of Economic Information and Forecasts has shown that net family incomes have been diminishing rapidly in all social categories since 1982. This decline has reached five per cent among the middle-level managerial staff.

The Social Security Code has been fully revised, the social security market has been opened to the insurance companies, and accumulations formed by additional contributions from citizens and used increasingly in the field of retirement pensions. The system of pay rates and its connection with the recognition of the workers' skills are being challenged either directly or with the help of highly personalised wages and salaries.

The frontal attack against the rights and freedoms of the working people is being waged in the form of large-scale or individual reprisals, dismissals for disciplinary reasons, and obstacles to trade union activities. All this questions the social usefulness of workers and affects their desire to perform their functions effectively.

Occupational motives and social concerns lead workers, as a whole and individually, in their efforts to secure a new approach to the efficiency of enterprises and an economic policy that would guarantee their jobs and decent wages and salaries. They are

striving to acquire new opportunities for applying their abilities in production and in society and for displaying their initiative; they want a new ethical content for their work and a different development path for our country.

The 200,000 administrative workers the media refer to as managers do not keep aloof from this process, although their occupational tasks prompt them to view it in a different way. All the activities they perform as managers serving capital are determined by motives of financial profitability. However, the place of the managerial personnel in society and in production implies a certain autonomy of thinking and enables them to perceive the limitations of the system.

Taken together, the social changes that occur show that we are dealing with a diverse reality. On the one hand, objective conditions help to bring the different components of the working class closer together and promote their unity. On the other, the action taken by the employers and the diversity of the workers' functions and ways of life foster disunity.

This dual process has raised a decisive question: how can the new unity of the working class be asserted with due regard for the existing diversity in human behaviour and mentality?

The reality of capitalist exploitation and the existence of our class adversary remain an important argument in favour of mobilising all those who constitute the working class to the struggle for changing their position and transforming society. At the same time, the working class not only holds a special place in production but also displays a distinctive way of consumption

and a distinctive way of life. Therefore, class consiousness is being forged not only on the shop floor but also in all other spheres of life.

There is thus a dialectical connection between our efforts to unify the working class and our striving to create a new unity comprising most of the people. The unity of the working class and the creation of an appropriate political prospect will be brought about by unitary efforts which will take the experience of our alliances into account and overcome the stagnation that has developed. An alliance interpreted merely as an appeal to join the working class or as a search for a compromise that will delay the resolution of contradictions and principal problems is totally at variance with the communist strategy which is, even today, aimed at the creation of a different society.

Efforts to ensure the deepest possible analysis of the changes occurring in society and, consequently, in the working class, are by no means linked with some sort of dogma. These efforts make it possible to affirm and enrich our strategy and to better refute those who strive to perpetuate a system that generates crises, who want the French to live in a society in which expertise and knowledge would, under cover of liberalism, develop the country "at two speeds".

The resolution of the 25th FCP Congress had this to say on the matter in question: "The crisis exerts a contradictory influence on the evolution of society and on the aspirations and struggle of the working people. Giving rise to difficulties and aggravating numerous social contradictions, the crisis impedes the development

of the struggle, but at the same time makes the demands for fundamental change more imperative."[2]

This assessment, which was the subject of a broad discussion, needs to be explained in depth because it is essential for grasping the character of the conditions necessary to create a united popular majority and to gauge the content and the intensity of the struggle to come.

A striving to take the distinctive features of our society into account cannot be reduced to a registration of only the more apparent phenomena typical of human aspirations, requirements and conduct. An approach like that would be a mechanistic description of the evolution of society without an analysis of its structural elements. It would ignore the data that, while being more abstract, are essential for explaining the day-to-day difficulties and contradictions.

It appears that three groups of data are of decisive importance here. First, there is a need to uncover the roots of the crisis and to identify its consequences, including its impact on human behaviour and the spiralling / processes of decline / induced by the crisis. Second, there must be an analysis of the technological evolution which, causing breakthroughs in production, encourages the working people to work and live in a new way and stresses the need for a truly social revolution, for transforming society so that it would develop and serve man. Finally, the struggle for greater democracy, for broader participation of workers in decision-making and for better skills hgihlights the limitations inherent in the capitalist system and in the crisis.

Taking these limitations into account, the employers do not remain idle. They try to secure advantages for themselves by using the development of technology, the growing role of intellectual labour in production, and the human aspiration for independence.

These moves are now facilitated by a rightward shift in politics and by capital's effort to regroup in response to the crisis. By altering the social structure in line with the "dual socio--economic concept", capital is trying to influence human thinking and behaviour and to take the edge off the demands that are being advanced.

We are witnessing essentially opposite processes. One must not confuse the development of the crisis, the evolution of society and--all the more so--technological change. Only then will it be possible to find solutions to the crisis.

Society evolves as a result of this change and of the struggle waged by the working people. While displaying a degree of independence, the processes in question interpenetrate and influence one another. The situation in the country is shaped by complex and contradictory phenomena, and our analysis is aimed at grasping and explaining them better.

The temptation to regard these processes and shifts as elements of socialism merely produce an incorrect assessment of the tasks to be tackled. The anti-crisis content of the objectives is ignored, there appears a feeling of complacency about alliances, and the need for the Communist Party's independent analysis and action is underrated.

This would draw us away from the objectives of transforming society--objectives dictated by the character of the crisis and by the extremely important technological change--and result in support for the idea of a "difficult but necessary stage" in the development of the nation.

This view, widespread among engineers, administrative personnel and technicians, cannot be explained solely by their belief that the crisis is inescapable or that the solutions imposed by scientific and technological progress are foreordained. With some people, this view also implies a confused search for a way out of the crisis. To ignore this would be to underestimate the possibility of identifying common objectives connected with this search.

A comparison of the way administrative and managerial workers voted in the elections of 1981, 1984 and 1986 appears to confirm this conclusion. In the elections to the European Parliament they "punished" the Socialist Party for its failure to use all the opportunities it had or could have had for accelerating the nation's development, promoting economic growth and creating jobs.

In 1981 many voters in this category withdrew their support from the right-wingers, specifically, from Valery Giscard d'Estaing, for the same reason. In 1986, their attitude was not a defection to the right-wing camp but largely a return to the Socialist Party: voting for it were 38 per cent of the middle-level administrative cadre and 32 per cent of the professionals.

Naturally, a desire to cast a "useful" ballot largely shaped the choice of those who preferred to support the Socialists. Con-

vinced that a "dual" society was a stage the nation simply had to go through, they held that the Socialist Party was more capable of combining modernisation and humanism, of providing the "social management" of this "necessary stage". But, while acting in this way, they often had a feeling of profound dissatisfaction and uneasiness.

The success of the General Union of Engineers, Technicians and Administrative Workers and of the GCL in the elections of union representatives confirms the deep-rooted striving for change, although this does not mean that the people concerned have found the political options which are consonant with their expectations.

This produces numerous opportunities (which the outcome of the March 16, 1986 general elections cannot obscure) for the involvement of administrative and managerial workers in the alliance of the working people and in the struggle against the crisis.

One should not, however, underrate the distance separating their readiness to act from their understanding of the Communists' proposals which are mostly either denied coverage or distorted. Turning towards the future, the two sides do not always give the same answers to the same problems that stem from specific realities.

Nevertheless, the aspirations and the very reason for existence of administrative and managerial workers make it possible to believe that there is a certain closeness between their professional mission and the political prospects advocated by the Communists. I refer to the need to create a society based on the principles of initiative, responsibility and freedom and consonant with the

desire of people to put their knowledge and work at the service of society, not of a privileged handful.

We are not forcing this convergence; it is dictated by reality and by the needs of society. But it is yet to be given a vibrant and concrete form.

The aim of the Communists is not to win technicians, engineers, administrative workers and scientists over to our side but to discuss, together with them, the real problems of our crisis--ridden society, to search for solutions together and to build socialism together. We do not ignore the difficulties of such an approach, nor do we try to assume a patronising attitude. Our party is embarking on this road with a sense of responsibility --not because the number of these workers keeps growing but because their role is indispensable in today's society and will be even more essential under socialism built the French way.

[1]Georges Marchais said at the 25th Congress of the FCP that "the forces of capital have their own social blueprint. They call it a dual society, a society advancing at two different speeds. On the one hand, there are those who will have sufficient incomes. On the other hand, there are those who have no chance of making it, who can lose their jobs, who are saddled with low wages and a weak system of social protection, who will be in constant need of assistance" (Cahiers du communisme, March-April 1985, No. 3-4, p. 42).--Ed.

[2] Cahiers du communisme, March-April 1985, No. 3-4, p. 371.