[MR. Deputy Speaker]

of the order paper be granted to the President *to complete* the sums necessary to defray the charges that will come in course of payment during the year ending the 31st day of March, 1973, in respect of the heads of demands entered in the second column thereof against Demands Nos. 93 and 94 relating to the Department of Culture."

The motion was adopted.

[*The motions for Demands for Grants which were adopted by the Lok Sabha, are reproduced below—Ed.*]

DEMAND NO. 6 : DEPARTMENT OF EDUCATION.

"That a sum not exceeding Rs. 2,03,37,000 be granted to the President *to complete* the sum necessary to defray the charges which will come in course of payment during the year ending the 31st day of March, 1973, in respect of 'Department of Education.' "

DEMAND NO. 7 : EDUCATION.

"That a sum not exceeding Rs. 66,04,62,000 be granted to the President *to complete* the sum necessary to defray the charges which will come in course of payment during the year ending the 31st day of March, 1973, in respect of 'Education.' "

DEMAND NO. 8 : DEPARTMENT OF SOCIAL WELFARE.

"That a sum not exceeding Rs. 7,28,15,000 be granted to the President *to complete* the sum necessary to defray the charges which will come in course of payment during the year ending the 31st day of March, 1973, in respect of 'Department of Social Welfare.' "

DEMAND NO 106 : CAPITAL OUTLAY OF THE MINISTRY OF EDUCATION AND SOCIAL WELFARE.

"That a sum not exceeding Rs. 87,29,000 be granted to the President *to complete* the sum necessary to defray the charges which will come in course of payment during the year ending the 31st day of March, 1973, in respect of 'Capital Outlay of the Ministry of Education and Social Welfare'. "

DEMAND NO. 93 : DEPARTMENT OF CULTURE.

"That a sum not exceeding Rs. 3,75,25,000 be granted to the President *to complete* the sum necessary to defray the charges which will come in course of payment during the year ending the 31st day of March, 1973, in respect of Department of Culture'."

DEMAND NO. 94 : ARCHAEOLOGY

"That a sum not exceeding Rs. 2,03,52,000, be granted to the President *to complete* the sum necessary to defray the charges which will come in course of payment during the year ending the 31st day of March, 1973 in respect of 'Archaeology'."

16.05 hrs.

DEPARTMENT OF SCIENCE AND TECHNOLOGY

MR. DEPUTY-SPEAKER : The House will now take up discussion and voting on Demand Nos. 96 to 98 relating to the Department of Science and Technology for which 3 hours have been allotted.

Shri C. K. Chandrappan has tabled cut motions to the Demands for Grants. I would like to know if he is present in the House and desires o move his cut motions.

SHRI C. K. CHANDRAPPAN (Tellicherry) : Yes.

DEMAND NO 96 : DEPARTMENT OF SCIENCE AND TECHNOLOGY

MR. DEPUTY-SPEAKER : Motion moved :

"That a sum not exceeding Rs. 2,95,25,000 be granted to the President *to complete* the sum necessary to defray the charges which will come in course of payment during the year ending the 31st day of March, 1973, in respect of 'Department of Science and Technology'."

DEMAND NO 97 : SURVEY OF INDIA.

MR. DEPUTY-SPEAKER : Motion moved :

"That a sum not exceeding Rs. 7,42,45,000 be granted to the President *to complete*

the sum necessary to defray the charges which will come in course of payment during the year ending the 31st day of March, 1973, in respect of 'Survey of India'."

DEMAND NO. 98 : GRANTS TO COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH

MR. DEPUTY-SPEAKER : Motion moved :

"That a sum not exceeding Rs. 20.61,08, 000 be granted to the President *to complete* the sum necessary to defray the charges which will come in course of payment during the year ending the 31st day of March, 1973, in respect of Grants to Council of Scientific and Industrial Research'."

SHRI C. K. CHANDRAPPAN : I beg to move :

"That the Demand under the Head Department of Science and Technology be reduced to Re.1."

[Meager efforts in promoting science and technology (1)].

"That the Demand under the Head Department of Science and Technology be reduced to Re. 1."

[Failure to give adequate importance to industrial research (2)]

"That the Demand under the Head Department of Science and Technology be reduced by Rs. 100."

[Need to conduct a high level Inquiry into the working of the Central Electronics Engineering Research Institute, Pilani (3)].

"That the Demand under the Head Department of Science and Technology be reduced by Rs. 100 "

[Need to investigate the reasons for surrendering about 42 lakhs of rupees by the Central Electronics Engineering Research Institute, Pilani, when a large number of projects in the Institute need financial assistance for completion (4)].

"That the Demand under the Head Department of Science and Technology be reduced by Rs. 100. '

[Need to provide congenial atmosphere in the Central Electronics Enneering Research Institute, Pilani, so that the able and competent scientists working there may be able to continue to do their research work and may not leave the Institute for want of encouragement (5)].

MR. DEPUTY-SPEAKER : The cut motions are also before the House.

SHRI S. P. BHATTACHARYYA (Uluberia) : Sir, speaking on the Department of Science and Technology I should say that I have visited some of the research institutions and I have seen that the workers are working seriously. They are happy that they can do something for the development of our country in the field of research work.

16.08 hrs.

[SHRI K N. TIWARY *in the Chair*]

Particularly in the field of agriculture research in the matter of new seeds, dwarfed varieties of paddy and wheat have been evolved to have higher production. They want the country to be benefited by this research. But unfortunely, only 10 per cent of the people can get the benefit of the research work. The condition of our country is such and the social relations in our country are such that 90 per cent of the people cannot get the benefit of it. The position is getting worse after the green revolution. The rich are getting richer and poor poorer and the disparity is increasing. This must be appreciated by the Ministry and remedial mersures taken.

Coming to the Geological Survey of India at present it is under the control of the Department of Mines and Metals. It is only proper that that organisation should also come under this Department of Science and Technology so that the entire research in all the fields can be coordinated

At a time when our technologists are remaining idle there are some instances where

[Shri S. P Bhattacharyya]

foreign collaboration is permitted under which foreign experts are coming to our country and doing things which we can do ourselves. If it is possible to do something in our country we should never permit any foreign collaboration. In fact, there are some cases where we are getting second-hand machines under collaboration agreements. This should also stop. We cannot afford to remain backward when we have to compete with other countries in the field of export. We should know that the imperialists still continue to follow their neocolonial policies so that we cannot come up and compete with them in the foreign markets. That is why they are giving us either second-hand or out-dated machinery. When we are thinking of self-sufficiency we should be careful about these things.

There is a national instruments factory in Calcutta This is a good concern established during the period of the British rule. Now it is not functioning well. It used to manufacture thermometers but suddenly it stopped production of thermometers, for reasons known only to it. Since it is a government concern our authorities should see to it that it develops such things and ensures that all the loopholes are closed.

Finally, I should say that with our natural resources and manpower, including technical manpower, we can do away with our present poverty and unemployment. We can do this if science and technology are properly applied and if we do away with the hurdles created by foreign imperialist interests, monopoly interests and big landholding interests, It will not require much time but it requires the guts, the capacity and the strength of the Government to do it. I want to see whether this Government is bold enough to do this or not and solve our problems.

DR. V. K. R VARADARAJA RAO (Bellary) : Mr. Chairman, Sir I am very glad that at long last this country has now a department and a ministry that will be wholly devoting itself to the growth of science and technology in this country and to the full utilisation of science and technology for both the economic and the social and intellectual development of this country. I think, the step which has been taken is a step in the right direction and I should like to congratulate the Government on starting this new department and new ministry.

By the very nature of things it is not possible to talk of what the department has been doing. As has been pointed out in the report which has been circulated to Members of Parliament, the department itself is still in a state of infancy and I understand that it has not yet been able to find a permanent habitation for itself nor has it been able to recruit all the staff which it requires and which is necessary for its functioning. Therefore, it would not be appropriate on my part to comment on the functioning of the department excepting to say that even within this very limited time for which it has been in existence, from the report that I read this morning I find that there is sufficient—I would even say evidence of the fact that there is dynamism behind this ministry. Of course, I do not like the appointment of so many committees. I must say that quite frankly. I find, there are 21 committees and each committee has got more committees of committees, sub-summittees and so on. But that apart, I find that already eight grops were specifically asked by the Minister, in connection with the defence emergency which came last year, to look into the problems where they could make effective use of science and technology and the report contains their activities. This does give one the confidence that the active involvement of science and technology, not a theoretical or just an ideological involvement but the active involvement of science and technology, in concreate problems does stimulate their thinking and will in due course lead to solving some of the various problems with which the economy is faced.

Having said that, I should like to say something about two major organisations for which the department furnishes the secretariat and hrough which the department proposes to function. This is something quite new. I do not think there is a parallel to it in any other ministry of this Government, where the ministry does not function merely through its own officials nor does it propose to have, I hope, a large number of officials who are whole-time officers in the Ministry. The Ministry is going to service two important bodies. One is the National Committee on Science and Technology and the other is the National Committee on Environmental Planning and Coordination, which is really environment and ecology. I think, it is a good thing because these Committees are constituted almost wholly of non-officials and men of expertise in their own respective fields, They

have been fairly and squarely charged with the task of identifying the problems that need attention and of suggesting concrete methods for the purpose of bringing about coordination and integrated attack on the problems that fall within their purview. They have been promised ministerial and Government support for any projects that they want to undertake.

I do not expect results tomorrow. I think, the Committee on Environment will take a long time indeed because that is a very difficult subject which has not yet been tackled in any adequate measure even in most developed countries. I think, it is a good thing that we have started doing it that way. Coming to the National Committee on Science and Technology, there again, I am not so sure when I look at all the committees and subcommittees that have been constituted and I do not know how soon they will be able to really make an impact. I hope that they will be able to make an impact by the time of the Fifth Plan. I do not know whether they will make an immediate impact. But I have no doubt that these are two essential infra structures that the country require in order to give full steam to the infra-structure which has already been created in this country by way of science laboratories, national institutions of higher education in science and technology.

I would like to say a word more before I go on to make what, I hope are constructive suggestions and that is that I want to point that we have already in this country, in our institutions of higher education, an integration of science and technology. We have got five higher institutes of technology. The first began as an institute of engineering and, gradually, they said, that we must have science for the purpose of seeing that the engineers are taught science in the engineering colleges. Now, in a number of those institutions, science departments have developed to an extent that they command international respect in their own right.

Here, I may refer to the oldest institution in this country, the Indian Institute of Science and Technology, Bangalore, on which Parliament is represented—I think, I am not being parochial—the Members of Parliament sit on the Council of the Indian Institute of Science and Technology which is sought to bring together science and technology. What I would like to ask the hon. Minister is to find out how these institutions are really bringing together science and technology. Is there anything like an inter-disciplinary approach to problems in these institutions where both technologists and engineers make their contributions ? Or do they function as water-tight compartments, each eminent in its own right, in its own expertise, and so on, but not really coming together, not really pooling talents for the purpose of having what I may call an integrated approach in science and technology to solve the developmental problems facing the country ?

This is one question which I should like to ask the hon. Minister. Of course, he may turn round and ask—thank God, you are in the chair—"What did you do when you were the Minister of Education ?" I think, I do not have to answer that question since. I am sure. my hon. friend will not put that question to me. I have no doubt in my mind, with whatever little experience I have in the field of education, that science and technology go together. You cannot separate them and keep them in two water-tight compartments. It is not enough to have an integrated course where you have some little science and some little technology and you produce a B.Sc. in science and technology. The solution is to see that there are problems in which both scientists and technologists are equally involved and they function together and follow what is known as an inter-disciplinary approach to these problems.

I would like to find out what is being done in this matter. I would go to the length of suggesting to the hon. Minister that it may be worth while having some kind of a small seminar—not a huge seminar, inaugurations, photographs in Vigyan Bhavan and all that—a kind of working seminar without any fanfare or publicity where you can get together both scientists and technologists, actually, in the same institution. For example, the University of Bombay has a Department of Science and a Department of Technology. Several other universities have got departments of science and departments of technology. The Banaras Hindu University has got a Department of Science and a Department of Technology. Similary, the Aligarh Muslim University has got a Department of Science and a Department of Technology and so on. I think, it will be better to take institutions where there

[Dr. V. K. R. Varadaraja Rao]

are both science and technology and get these people together and ask them, 'Are you working together ; if not, what are your problems ? I think, the hon Minister will find, if he conducts such an enquiry, that they say, 'Nobody has given us problems ; we have got no problem : unless we are given problems we cannot come together 'The best way for an inter-disciplinary work is to work with concrete problems and not merely hold seminars or have discussions how science is important for technology and how technology is important for science. This is, therefore, one concrete suggestion that I want to place before the hon. Minister for his consideration.

Then the second thing that I want to suggest is this. This really follows from what I have said so far. Much more thinking needs to be done —I do not say that a committee or a sub committee should be appointed, but much more thinking needs to be done on the apparatus, the technique, the methodology, for bringing science and technology together. The creation of a department by itself does not help, though it does emphasize the country's interest in bringing them together. But what is the technique, what is the methodology how do we have teams of scientists and technologists coming together what are the kinds of fields where they can come together ? There are certain fields in science where there will be no question of associnted technology. Similarly, there are certain fields in technology where there is no association of science ; and such cases are less here than in the former. Bnt what is the methodology of bringing science and technology together ? Some kind of white paper or blue paper or whatever is the colour of the paper, some kind of a paper indicating expert thinking of the Government on the methodology of bringing science and technology in operational terms should be made available. Perhaps some of us who are interested in the subject would like to discuss it with the Minister if such a paper becomes available.

I now come to the question of personnel policy. I am very glad, I am delighted, that in several places in the Report, frequent reference are made to the personnel policy for scientists. I think, it is very important. One of the greatest mistakes that we have made, if I may say so, in our government personnel policy is largely to apply the same kinds of principles for technical personnel for scientific personnel, for expert personnel as we apply to the administrative personnel. I am not merely talking of the question of UPSC recruitment or non-UPSC recruitment. That problem at always there. But that is not the only problem The problem is how do you keep a scientist uptodate, how do you keep a technologist uptodate, how do you keep him in a position to have dialogue with other people who are uptodate. If you appoint an Assistant Technological officer or a scientific officer or educational officer, then he becomes a deputy or joint and finally ends up with it. During a period of 20 or 25 years, he had merely remained as a frog in the well with hardly any inflow or outflow, in a stagnant pool. I think, this is something which, if not rectified will not make the policy the hon. Minister has in mind, the Government has in mind, effective at all. I would like him to consider this very seriously and not merely the question recruitment through UPSC or Expert Selection Committee. It is much more important to consider the question : should we not have an inflow of talent from outside talent from the universities, talent from the laboratories, talents from science institutions, not on a permanent basis, but coming for a period of time and then going back to their own research activities and similarly those working as technical persons in the Ministry or its organisations going to the universities and coming back. I think, this inflow and outflow is the only method that I can think of by which it would be possible to keep science and technology uptodate and effective instead of making it a part of Government. I would also like to point out regarding the question of personnel policy that we should not bureaucratise them. Do not bring them under the umbrella of Ministry, even if you call them committees and all that Do not make everybody feel that he is obliged to Government, he is a part of Government in some remote kind of way. Government is a very good thing. But I think, it is also important to see that people can remain in their Universities, can remain in their research institutions and still feel that they have got the facilities to update their knowledge and be in touch with scientists abroad. I have suggested and I would like to suggest again for the Minister's consideration some system by which a few people, eminent people, in different Universities or research institutions or Institutes of Technology, can be named and they could be told, 'Go and spend a year abroad' not for this particular Conference or

particular seminar, but 'Go and spend a year abroad, meet your compeers, talk to them, come back and report to us all what you have seen'. Don't only rely on the Scientific Attaches or Engineering Attaches or Cultural Attaches. They are all good men. I am not against them. From the very nature of the case, they will not be delivered by your eminent men. If they are given one month or two months every year for the purpose of going abroad, they can select their own country, they can select the people they want to meet. The only condition that you may impose on them is that when they come back, they should submit reports to the Government as to what they have seen and what they would like to happen in this country.

I won't take more time now. I was a little touched when I read about the National Plan for Science & Technology as to what does it mean ? You have a National Plan for Science, and Technology that is different from the Five Year Plan. Can we have a plan for Science and Technology by itself ? I think, this is a subject if I may say so to the hon. Minister on which there has not been sufficient public elucidation. The Ministry itself is very articulate. I think I should suggest to him that he should take some opportunity either in this House or elsewhere, to spell out what precisely is meant by the National Plan for Science & Technology.

One thing I found in this report was the expression "to intensify the inputs of scientific and technological knowledge and expertise in socio-economic planning." That means something. That is something which reduces my apprehension a bit But, I would like to say that essentially the Plan is intended to meet certain requirements of the community, the scientists and the technologists come in in order to say : Can these requirements be met at lower costs ? Can these requirements be met without importing foreign commodities ? Can these requirements be met by increasing the exports of this country ? Can these requirements be met by planting them in backward regions through appropriate scientific and technological application of expertise ? In other words, if I may say so, without any reflection on the eminence of the profession to which in a very very remote way I also sometimes claim to belong that I am a social scientist, I would say that it is important that these scientists in the whole field of scientific research should be linked to the concrete problems. When we say 'Plan', don't make it a separate plan. I know and in all these Committees, I am told, there is somebody from the Planning Commission sitting on it. Who is sitting on the Committees ? May be some junior officer, because there are so many committees. The Planning Commission has got, I think, about four or five Members one of whom is the Minister. Therefore, it is very important that before the National Committee there has to be a plan. Will they have a framework of what the Minister wants or the Planning Commission wants, rather ideas of what he wants in what backward regions you want to locate the industry, what are the commodities and crops where you want to increase the production, what are the import substitutes that you want, what are the exports that you want you want to promote ? Concrete quostions – 8, 9, 10 or 11. If the Planning Commission asks, then the National Committee on Science & Technology can draw up a plan for Science and Technology which is intended to answer these questions and deal with these problems, rather than start it *ab initio*. We shall try to formulate a plan on science and technology like that.

I think, I have spoken at much greater length than I should have I would like to welcome the proposed formation of a Science and Research Council for starting basic science research because in all this, in our concern with the economic development and practical work and so on and so forth, sometimes, we forget that at the root of all practical work lies the theory and basic research needs supplementing.

I would also like to congratulate the Ministry and the Government of India for accepting the recommendations of the Second Part of the Sarkar Committee which has made very good alterations in the structure of the GSIR. I am glad for the first time neither the Prime Minister nor the Cabinet Minister in charge is put in the kind of position in which they were put in the previous years. The Director-General is now made the statutory Chairman of the Board, much more domestic government has now been given to the CSIR than it was before. I have no doubt in my mind that it is bound to produce results before long.

I would like to conclude, Mr. Chairman, by expressing my hope that this new Department that has been established and the kind

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of new ideas that are being thrown about in the wind, will produce results. I, Sir, have been a student for quite a long time and I hope I continue to be a student, nothing distresses me more than the problem of how to solve the problem of our poverty. No amount of mere social change, institutional change, taxation, etc. is going to help it. It is only science and technology that can solve the problem of Indian poverty. Of course, many other things are required. But, unless science and technology is actively, emotionally, and dedicatedly involved in the matter, you are not going to solve the problem of poverty.

I hope and trust that the new department which is being started under the dynamic leadership of the Planning Minister will fulfil the hopes and aspirations which many of us entertain about what science and technology can do, to solve the practical problems of economic distress and poverty in this country.

MR. CHAIRMAN : Shri Indrajit Gupta.

THE MINISTER OF PLANNING AND MINISTER OF DEPARTMENT OF SCIENCE AND TECHNOLOGY (SHRI C. SUBRAMANIAM) : Can you speak tomorrow ? I have to go to reply to the Planning Debate in the other House. I would like to hear when you speak. Three hours were allotted; two hours only will be over today. It will be carried over tomorrow also.

SHRI INDRAJIT GUPTA : If you permit me to speak first tomorrow that will be better because I have to go away ..

SHRI C SUBRAMANIAM : You can be the first speaker. Only if you don't mind otherwise, I will read your speech; but that won't be effective.

SHRI INDRAJIT GUPTA : I have only 6 or 7 minutes time to speak.

MR. CHAIRMAN : There is one danger, that is, that it may collapse today, because there are very few speakers.

SHRI C. SUBRAMANIAM : All right.

MR. CHAIRMAN : There is a fear although I don't think so—that it may collapse.

SHRI INDRAJIT GUPTA (Alipore) : My friend Dr. V.K R.V. Rao towards the end of his speech, made some observations about what he considered to be the Science and Technology Plan of the Government but I think his remarks—if I may say so—to be a bit premature, because, the Report which we have been given, itself carries the heading "Towards a Science and Technology Plan."

So the Government itself does not claim that it has the Plan as yet. It is only moving towards a Science and Technology Plan. How it proposes to move is what it has tried to explain in this report.

That is why I would like to begin by saying that it is really quite a sad commentary on the state of our scientific and technological development in terms of planning, that only after four general Five-year Plans, we are really trying to come to grips with the question of having an integrated plan for Science and Technology also

Sir, now of course, everybody swears by the slogan of self-reliance because it has become a very pressing and acute problem indeed for national survival. But the fact remains that all these years whatever scientific institutions and national laboratories we have in the country—there are quite a good number of them—have been allowed to function more or less, if I may say so, outside the general overall planning process. So, this is the real trouble—not that we have not got good laboratories or competent and dedicated scientists. We have. But the real trouble has been that this Scientific Research has remained isolated from the overall planning process. The result is that these laboratories, institutes and the directors of these institutions have more or less been left to go on their own way according to their own plans, if I may say so, and this has led to frustration among many scientists especially the younger ones who did not feel that they are working for any clear-cut objective which is in the national interest and has also created a somewhat unhealthy atmosphere in many of these laboratories, based not on considerations of the national requirements, but on other subjective considerations and partly this has also been responsible for what we popularly call the 'brain drain' with many of these scientists not having the enthusiasm to work here and looking for pastures abroad. It is certainly overdue but

nevertheless now welcome that a separate department has been set up and an attempt made. We cannot assess it at this stage, perhaps another year will have to pass before we can assess what exactly they are doing in this field. An attempt has been made to make up for this lack or deficiency which has been there all along and for which we have paid very dearly. I may point out that all these questions which cannot be gone into in details here have been discussed in the second part of the Sarkar Committee's report, the committee of inquiry which went into the CSIR matters, of which I had also the privilege of being a member. I am really surprised, I suppose it may be due to oversight, but I do not find in this report even an acknowledgment anywhere, even a formal acknowledgment of the work done by the Sarkar Committee. I am not aware of whether all the recommondations have been accepted or not. I was surprised to hear Dr. V.K.R.V. Rao saying that he was very happy that the recommendations had been accepted. Perhaps, he has more inside knowledge than I have. But at least we have not been formally told about it yet, and we are very anxious to know; when the hon. Minister replies to the debate I hope he will tell us what the position is, because specific recommendations have been made by the Sarkar Committee precisely in an attempt to tackle these problems and maladies which have been besetting our scientific research work. Of course, I do not share the view that just by developing science and technology we can get out of the present crisis in our industry and economy, because that is something which is connected, I am afraid, with the whole economic and industrial structure, and if I may say so, I feel that the present economic and industrial structure of this country is hostile to the development of self-reliance in the proper sense of the term.

Most of the industrial capacity in this country as also industrial activity is still largely foreign-oriented in its technology and equipment. There is a craze not only among Indian private entrepreneurs and Indian businessmen, but if I may say so, there is also a craze among the people who run our public sector for what is known as foreign know-how and foreign technology. As a corollary to this, Indian science and Indian technology have remained backward and barren, not because they lack in competent people or lack in very good laboratories and institutions. The import of finished goods, which sentiment in this country may resent has been stopped or cut down to a very great extent, but it has been replaced by the import of foreign technology, components, equipment and expertise, of which, I am afraid, the public at large knows very little because what is going on is not revealed to them. Thus, we find an Indian businessman saying that because of the gap between levels of foreign technology and domestic technology, he has no other alternative but to go in for foreign collaboration, if he has to survive...

SHRI PILOO MODY (Godhra) : Government say that.

SHRI INDRAJIT GUPTA : This is what has led in a vicious circle to the present state of affairs. Therefore, I do not think that simply by framing a science and technology plan, we shall be able to break out of this deadlock and really make some accelerated advance on the path of self-reliance, unless the entire attitude, psychology and outlook which dominates our present economic and industrial policy is also changed.

I am very glad that the National Committee on Science and Techoology has been set up with commendable speed, because I think that this was the principal recommendation of the Sarkar Committee ; in so many words at least, a bare acknowledgment should have been there ; it is not that I am claiming that the Sarkar Committee alone had thought of this idea. Many other people had thought of it or something like this, namely of having an apex body, and had suggested it to our committee when appearing before us. But the fact remains that it has emanated from the committee as positive specific major recommendation which was supposed to get top priority and which has been accepted by Government, about which I am very glad.

How is this plan going to be integrated with the other plans for licensing, import, production and so on ? It cannot work in isolation from those plans. This is what is worrying me a lot because the attitude to foreign knowhow which must be changed if indigenous knowhow is to be properly encouraged, is persisting in other fields dealing with foreign trade, industry, import policy and so on, and is not changing at all. If these are going to be mutually contradictory, I am

[Shri Indrajit Gupta]

afraid science and technology will again find themselves frustrated.

While we were working in the Committee, we were told by innumerable witnesses surprising things. Nobody was able to give us a complete list even of the items imported into the country from abroad ; they said it is impossible, such a list cannot be prepared. Then how are you going to bring about import substitution ? Many processes have been developed in our laboratories which nobody is willing to take up for commercial production. Yet we find that those very same components, things which have been produced, are being imported and are being used even in public sector undertakings, on the basis of a licence.

Such contradictions are rampant in the whole structure. Therefore, this plan will have no meaning unless Government as a whole, all the departments and Ministries as a whole, get together, collaborate and make a determined bid to maximise the use of domestic technology to replace foreign technology wherever it is not absolutely essential.

The recommendations made by the Sarkar Committee on this point are very clear These are extremely modest recommendations. I cannot read them in full. But I will quote a few.

> "The licensing machinery of the Government should be used as an effective instrument for promotion utilisation of indigenous research".

What is going to be done about this ?

> ' Foreign collaboration should, as far as possible, be restricted to outright purchase of knowhow without any obligation to purchase the related design engineering or the entire plant from abroad if available in India".

What is going to be done about this ?

> "Industry should be permitted to import knowhow only if it agrees to invest sufficient funds either in its own R & D units or in research laboratories in the country".

What is going to be done about all these things ?

Normally, we find that the utilisation of processes developed in the CSIR laboratories is also very unsatisfactory. In the latest report given to us, the abridged report of the CSIR, even they say : reviewing the work of the year ; 1971 :

> "99 processes were released to industry during the year bringing the total number of processes/products released for commercial utilisation to 491. Out of these, 229 processes are reported to be utilised".

Even from out of the 491 processes released by the CSIR from the very beginning for commercial utilisation, only 229 are being utilised.

Actually, what is the machinery, structure or institution which is going to bring together research in the laboratory and the actual production line in the factory ? There is a gap here. We could not answer this question. We do not know whether the NRDC can fulfil this role adequately. Some link has to be forged ; otherwise, much of this research will remain academic and barren.

There is one other thing. During a crisis, certain interesting things come to light. The present Director General of the CSIR, Dr. Nayudama has written an article in *Yojana* of 20 February in which he says :

> "During this crisis"—(that is the emergency of last year when people were pressed to do certain things)—' it was found that in an exercise carried out under pressure of emergency, a listing of some 132 items was done of which the imports exceed Rs. 10 lakhs each".
>
> "It was found that in 97 per cent of these cases the capability to produce either existed in India or could easily be developed on the basis of available equipment and personnel in the CSIR laboratories or in colaboration with industrial firms."

132 items whose imports exceed Rs. 10 lakhs each can be produced in this country. This is discovered at the time of national emergency. But after the discovery, I do not know what is going to be done actually to follow it up. Dr. Nayudamma says :

> "In a further exercise, the laboratories have indicated that at many as 637 items

in which either indigenous substitutes are available or are under investigation or in part have been developed. A critical examination of these is in progress. It is obvious that a vast potential for import substitution exists and can make a major impact by way of saving of foreign exchange on imported materials and equipment."

So, these are some of the things which show that there is an utter lack of co-ordination between the Ministry of Foreign Trade which is responsible for import policy, the Ministry of Industrial Development which is responsible for the licensing policy, the Ministry of Finance, the DGTD – Director-General of Technical Development – and the CSIR and all the other scientific and technical institutions. They are all functioning separately, isolated from each other ; one does not know what the other is doing. Therefore, the Plan will have no meaning unless this is tackled first and foremost.

16.46 hrs.

[SHRI R. D. BHANDARI *in the Chair*]

Here, I find in this report a rather pathetic plea being made by the Department. It says : —

"In order to fulfil this responsibility the Department, in consultation with the NCST, has to interact closely with the two bodies in the Ministry of Industrial Development in which these proposals are deliberated upon, namely, the Foreign Investment Board and the Licensing Committee."

Quite correct.

"The Department has already approached Industrial Development Ministry to accord it representation on these bodies."

This department is a supplicant, appearing before the mighty empire of the Ministry of Industrial Development, asking them mercifully to allow it to have a seat on this great Licensing Committee and the Foreign Investment Board, so that science and technology can at least get a seat there, and try to see whether some co-ordination can be brought about. Is this the way top level planning is going to be done ?

On the same page in this report—page 10—I see something else which is also a contradiction, and shows what kind of co-ordination or lack of co-ordination is there. Talking of NRDC, it says :

"...the NRDC is considering participation in risk capital of enterprise based on domestically developed technology. It is considering such participation in bigger projects like the tractor project in Punjab, based on design and knowhow developed at the Central Mechanical Engineering Research Institute, Durgapur."

I am very happy, because at least on three or four occassions in this House, I have asked questions and raised discussion about this tractor which was developed at CEMERI at Durgapur, asking whether it will be exploited and brought into commercial production, and every time, I have been told in the House by the Minister of Industrial Development that the prototype of the Durgapur tractor was found to be unsound ; that the trials that were held proved that it was not feasible ; it was not viable ; it does not work ; and therefore, they were going in again for foreign collaboration to manufacture tractors from Czechoslovakia or somewhere else. I was continually asking what has happened to the Durgapur tractor, and they said, 'Oh, it does not work ; experts have tried it out and found it was not viable." Now, after all this time, I found here that the NRDC is going to participate in the Durgapur project based on the same design which the Ministry of Industrial Development thinks is useless. They prefer to go in for foreign knowhow. There is utter chaos prevailing now : things could be done in this country for which import licences are freely issued ; processes are worked out in this country for which foreign collaboration is entered into.

Therefore, all I wish to say now is – because I have no time – that we must understand what we are supposed to planning for. All these years, this science and technology has been kept waiting outside like a step-child and not been integrated into the planning process at all And in the planning process itself, the present industrial policy and economic policy is such that it is hostile to the development of self reliance. That must also be changed. You must give up this servile attitude towards foreign technology and foreign knowhow. Only then you can

[Shri Indrajit Gupta]

inspire and enthuse our own scientists in those laboratories and institutions. I particularly have in mind hundreds of young scientists who appeared before us in the Sarkar Committee. It was gloomy and despondent to listen to them and their story of frustration. They were trying to do something but were prevented from doing so. We also were told how merit was not recognised and how other things which were supposed to be the monopoly of politicians had entered and invaded even the scientific world and had become a feature of the laboratories.

I am happy that this new attempt has begun under the Planning Minister who could exercise some overall supervision over the general planning of the economy. He is therefore, I hope, in a position to ensure that science and technology do not function in isolation but are given their logical place and that import policy, licensing policy and industrial development are all geared to a proper plan of self-reliance which can receive tremendous impetus from the scientists and technologists in this country. I hope he will tell us what recommendations of the Sarkar Committee have been accepted by the Government and how they propose to dovetail them into a plan, so that next year we shall be in a better position to judge their performance. I think now it is too early because we have begun too late.

SHRI D. D. DESAI (Kaira): Sir, I want to divide it into two parts base technology and frontiers of technology. Base technology has more or less passed into the text books and to that extent it should not be difficult for the country to adapt that technology into our daily manufacturing and other requirements. The differences in the standard of living among various countries have now been considered to be the equivalent of the gaps in the technology of the respective countries. The natural resources that exist in the world today are such that the cost of transport or exchange is not a major factor.

The illustrations for the above statement are ; Switzerland, West Germany and Japan. Those countries do not have the natural resources which countries like India have. All the some they are having a strong currency and enjoying a standard of living which is almost equal to, if not stronger than, even the mighty dollar. India had an advantage over Japan or Switzerland or West Germany to this extent that today it is possible for us to engage at far lower costs 100 or 200 engineers or scientists in Centres where experiments shuld be conducted in manufacturing processes.

There are certain complaints of isolated operations of various Government departments. May I give you the concrete example of our Atomic Energy Department. I had the privilege of being the Chairman of the Development Council for Heavy, Electrical Industries for several years. We in industries were interested in helping generation in larger capacities and transmission at higher voltages. We wanted to know the activities of the heavy electrical industry and the Ministry of Irrigation and Power could be co-ordinated with the Atomic Energy Commission. But that department was working like a water tight compartment, in strict secrecy. The result was that we were never sure as to what they had in mind and when they wanted something, they had to import things and at times on a turn key basis, as in case of Tarapore, though such things were not inevitable. If the Government of India sets about taking advance designs of various plants and equipments and standardised them for the time being, say for the next two or three years, then, only the process know-how would be the limiting factor for the utilisation of the equipments that could be manufactured with the help of drawings that would be made from the advanced designs of the international manufacturers. The patent laws and other things even in advanced countries are bypassed in modified designs to a certain extent, and thus the overall cost to this economy is considerably lowered.

During the last three or four years that I have worked on the body which gives awards for invention promotion and import substitution, I have found that the entries which we received are so limited that we have been giving awards even where the drawings have been substantially duplicated but, put to effective use based on designs that exist in the international world.

The important aspect of technology gap is this, that in this country today we have thousands of engineers without jobs, hundreds of workshops without work and a large number of consumers going without goods.

The prices are going up, the standards of living are low and we are finding that we are living in poverty among plenty.

Regarding the other part, the frontiers of technology, I regret to say that the country is far behind. Today in the United States and other countries, they have tried out trains with 300 and 400 miles speed, which is almost something verging on the speed of the earlier aeroplanes. We find that certain retrograde situations have arisen in India today. The train today between Bombay and Ahmedabad takes longer than 20 years back. The same situation is experienced in several other fields. For example, in power transmission, when all is said and done, our voltages since twenty years have been no more than 220 KV, whereas the world has moved to 1000 KV.

Today even where the plant and machinery and the capacity of the Indian people exist, there are certain departments which have a conservative approach to the standards and other things. Till this is changed, we will have difficulty. For example, in the railways and the posts and telegraphs we are still operating on fairly old standards. Unless and until the railway rolling stock weight is reduced, how is it possible for us, to have economy of transport or the speed with which you want to move with the given horse power? These difficulties can be solved if there is a co-ordinated approach for which this Ministry is new striving.

Going through the list of people who have been appointed on this Technology Committee, I felt very much saddened because most of them are theoreticians, and it is easy for them to write a book detailing the mechanics of doing things, but to do things is entirely a different matter. Therefore, upto 50 per cent the practical engineers who have produced goods, who have created wealth and who can instal and operate the equipment, and who have wide experience of application of technology, should be associated and form an integral part of this body. The present position in the country is that if we want to raise the standard of living, if we want to make our *garibi hatao* programme real, then there are no limitations regarding natural resources. Fortunately for us, the cost of operation of research or application is far too low than in the, United States or West Germany. For example, in the medical world, looking through the research centres in Germany, I find they have to give one D. Mark for a banana to feed a rabbit whereas the same rabbit can be fed at much lesser cost in this country. We can keep thousands of rabbits and do experiments of injections and other things in both homoeopathy and allopathy at a cheaper cost. In fact, it is very easy for us to export technology instead of importing technology. Of course, I do not say that we should have a closed mind on this. As stated by Mahatma Gandhi, and earlier by our Vedas, let knowledge flow from all sources and let the country improve. We do not want to shut ourselves out for parochial or other considerations, for this would unnecessarily put us in a difficult situation. The ony limit should be that we should not import repetitive know-how and we should not import know-how which is already not part of the patents or trade marks. In fact trade marks are not very important but where patents are involved we have to obtain this know-how. Then it is possible for us to reduce the present day cost and make things ourselves with the help of advanced technology.

17 hrs.

Finally, let me thank you for giving me an opportunity to make a few remarks which would be of some help in the present discussion.

* SHRI J M GOWDER (Nilgiris) : Mr. Chairman, Sir, at the outset, I would like to pay my humble tributes on the constitution of a separate Department for Science and Technology and that it has been entrusted to the care of my hon. friend, Shri C. Subramaniam, under whose dynamic leadership this Department will play its due role in the development of science and technology. From the Ministry of Education, the Council of Scientific and Industrial Research and the National Research and Development Council have been transferred to this Department. I would like to know why the Atomic Research as also the Space Research should be kept away from this Department. You will, Sir, no doubt agree with me if I say that, if these two Research Departments are with the Department of Science and Technology, the scientific research

* The original speech was delivered in Tamil.

[Shri J. M. Gowder]

and technological research in our country will get the much-needed fillip. I can only surmise that, just because these two Departments of Research are under the Prime Minister, there is hesitation in putting these two under the control of the Department of Science and Technology. The Prime Minister is already burdened with myriads of problems and she has to attend to her party work, the problems in different States etc. I doubt very much whether she will find and time to pay *attention to Atomic Research and Space Research.* I need not say that in consequence these two Departments of Research will not be able to function affectively. I would suggest the transfer of Atomic Research and Space Reseach Departments to the Department of of Science and Technology.

Taking for granted that the present arrangement of having these two Departments under the Prime Minister is not likely to be disturbed, I am surprised why Agricultural Research should be continued under the Department of Agriculture. All of us day in and day out talk about conducting agriculture on modern scientific lines. You will appreciate the fact that for this purpose it is not necessary and in fact it should not be that agricultural research is necessarily to be under the control of the Agricultural Department. In the interest of over all planning and execution of agricultural research programmes, it is imperative that agricultural research should be brought over to the Department of Science and Technology, the Minister in charge of which also happens to be the Planning Minister. When Botanical Survey and Zoological Survey have been handed over to this Department, I do not understand why agricultural research should not be given to this Department. I would urge upon the Government that Agricutural Research should also be transferred to the Department of Science and Technology.

Sir, it is reported that during 1970-71 we have spent on scientific research 0.48% of the value of the Gross National Product. It is not even 0.5%. If such a negligible sum is to be spent on scientific research, why should we talk so much about the importance of scientific research in national development ? Is there even any remote change of concrate development in scientific research with less than 0.5% expenditure for that purpose ? The Central Government have proudly annouced that in 1973-74 the investment on scientific research will be increased. Do you know how much, Sir ? From 0.48% of G.N P. it is going to be increased to the magnificient figure of 0 6%. Are we going to achieve the much-brigged about self-reliance with this increased ? It is surprising that the Minister of Planning who is in charge of Scientific Research has planned for this increase. If the Government do not find it possible to invest greater percentage of G.N P. on scientific research, why should the high dignitaries of the Government talk so much about the vital role of scientific research ?

After 25 years of our Independence, we have set up the National Committee on Science and Technology It has been left to the good fortunue of the Minister hailing from South to do this and I am sure this Department will be nurtured by him with sufficient care and attention.

It is also mentioned in one of the Report nearly 70,000 scientists are working in Scientific Research. This is the figure for the year 1970-71. It has also been stated by the Minister of Planning that nearly 70,000 scientists in our country are unemployed, I make bold to say that, if the investment of 0 48% of our G.N.P. of scientific research is increased to 2% of the G N.P., then all these 70000 scientists will get employment opportunities. Sir, in the developed western countries, 5% to 10% of their G N P. is spent on scientific research. It might be argued that with our slender financial resources it will not be possible to invest so much money on research. But, if endeavour to control and curb the wasteful expenditure in other Departments of the Government ; the Government will definitely find more than enough resources to invest in scientific research.

On 31 3.1971, in the Scientists' Pool of C S.I.R. there were as many 344 scientists awaiting employment. Our Minister for Science and Technology has himself stated in public that during 1970-71 we had imported transport machinery and components to the tune of Rs, 400 crores. I would like to stress the point that if we had invested more money on research and development of transport machinery and components, then naturally we could have substantially reduced the import figure of Rs. 400 crores, the huge drain on

our foreign exchange resource and also we would have been able to creates greater employment opportunities for the unemployed scientists.

I would like to bring to your notice another contradiction in conducting our research programmes. In 1971-72 a sum of Rs. 2,39,59,000 was provided for research in the Budget. But the revised estimate gives a figure of only Rs. 2,22,86,000. I would like to know the reasons for not spending nearly Rs. 17 lakhs on research programmes. It might be explained away by saying that due to the economy drive initiated by the Government this saving has come about. Should such an economy drive be made applicable to research programmes, the importance of which has been fully realised by all sides of this House. This economy can be effected elsewhere, but difinitely not in scientific research programmes. Is this the importance that we attach to the development of scientific research in our country ? Our laudable objective of self-reliance should not be made the victim of the economy drive of the Government.

The Public Accounts Committee of this House has in its report referred to the working of C.S.I.R. as follows :

> "Results of the research work done by the C.S.I.R. are not commensurate with the expenditure on the organisation."

It is also strated that the C.S.I R.'s researches are just not found feasible for implemention in industries and that is why the industries themselves are having their own researches. It is believed that the C S.I.R. work is just a duplication of what is being done in the industries. When we talk so much about import substitution by indigenous research, it is really understandable that researches and inventions done through foreign collaboration get much more royalty than indigenous researches. If the National Research and Development Council is not able to improve the standard of indigenous research so that it can measure up to the standard of foreign collaboration research, why should we continue to spend unnecessarily money on this organisation ? Every effort should be made to get rid of our dependence on foreign collaboration research on which huge royalties are to be paid. We can achieve this only when the standard of indigenous research comes up to the level of foreign researches.

I would also like to know what action has been taken on the recommendations of the Sarkar Committee which went in great detail about the working of C S I R How many recommendations of the Commi tee have been accepted and implemented so far ?

In June 1971, we signed an agreement with the U.S.S.R. for conducting agricultural research and animal husbandry research programmes. I would like to know whether the annual work plan has been prepared in this regard.

In conclusion, I would emphatically say that unless we spend more money on scientific research and technological Development, the goal of self-reliance will continue to be as elusive as it has been so far. I would also suggest that all the Research Organisations and Departments including that of Atomic Research and Space Research should be brought under the umbrella of the Department of Science and Technology so that there can be an integrated approach to the Development of science and technology in our country. If this is done, then it will also be possible to allocate more money for research Development.

With these words, I conclude.

SHRI P ANTONY REDDI (Anantapur) : Mr. Chairman, Sir, the Government deserves to be congratulated for having started a Department of Science and Technology attached to the Ministry of Planning. It is true even in the A.I C C. session in 1969, at Bombay, Dr. V.K R.V. Rao moved a resolution in the plenary session mentioning that the Government should recognise and lay emphasis on the development of science and technology in this country and also suggested that the Government should have short-term and long-term plans with fixed targets in furture five year Plans. He said that unless such plans are made, our progress in industrial development with the help of science and technology will not be appreciable. It is true that the Government has established the C.S.I.R. laboratories in various parts of the country to help research for industrial development ; the I.C A R. for improvement of agriculture and separate research organisation for defence

[Shri P. Antony Reddi]

needs. For the last many years the only organisation t at has produced very tangible and appreciable results is the ICAR (*Interruptions*) The CSIR laboratories have not been so successful. They teach some laboratory research. They do not have any definite plans of their own. They have been doing some sort of random research. In the process a few inventions are but they are only accidental. They found out certain knowhow which are useful for the industrial development. But, unfortunately, the industries in our country were indifferent to take up the knowhow of the CSIR laboratories. They have always expressed that they do not have enough faith in the knowhow of CSIR laboratories. I myself along with some other friends on the Sircar Committee, have made enquiries Industrialists used to express the view that they feel that the knowhow of the CSIR laboratories would not be profitable if they are taken up by them.

CSIR laboratories are also not being utilised by the industries. They do not give to the C S I.R. their problems for solution except in stray cases. As the industries are rather indifferent to do research of their own and as they always prefer to get knowhow from foreign countries, it is high ime that the Government thinks of compelling industrialists even by law, that a certain percentage of their income should be utilised for doing research of their own or by using the CSIR laboratories. The AICC, in the same Resolution, has said that Government should spend at least one per cent of the gross national income for the development of science and technology. USA is spending 27 billion dollars on research, on science and technology alone England and Russia also spend huge amounts for development of research in science and technology. In a developing country like ours, where the industrial development is very important, where we are draining our foreign exchange for buying foreign knowhow, the new Ministry should keep the AICC Resolution before them and spend the minimum of one per cent of the gross national incom for development of science and technology. Unless this is done, all our plans will be only wishful thinking and pious intentions.

It is said that there is a bottleneck in the matter of implementation of the knowhow locally. Our CSIR laboratories have, no doubt, certain really very useful knowhow for industrial development. But the DGTD very often gives licences to industries for getting foreign knowhow in spite of the fact that we have the knowhow locally. There seems to be lack of liaison between the CSIR laboratories and the DGTD This aspect should be rectified by Government and it should be sent that, when there is Indian knowhow, no industry is given a licence to import foreign knowhow. Unless this is done, our knowhow will be a waste, the CSIR laboratories would not be useful to us.

We often talk of industrial monopolists. Unfortunately, in the field of science also. there are monopolists. We have a number of scientists who have monopolised their service field and they do not allow the younger scientists to come forward. Very often they exploit the junior scientists ; when a knowhow is found out, the Senior Scientists it is adopt them in their name and the juniors are deprived of the benefits. In some cases the juniors work is not even acknowledged This is one of the main reasons, as some people say, for brain drain from our country. These junior scientists get frustrated and discouraged. When they find opportunity to go elsewhere where their research scholarship would be recognised and rewarded, they leave India But I would like to sound a word of caution. We are often enamoured of sophisticated devices, that are being invented throughout the world and are being used in various advenced countrise of the world. In America so many labour-saving devices are being used that every family member has to labour harder in order to maintain them We should not bring our country to that stage. Our country has huge population, a lot of unemployed persons. If we bring in all these labour-saving devices, especially the sophisticated types, then our unemployment problem will increase and it will create other social problems too for us to tackle. Therefore, I suggest that whatever inventions we make they should be only for industrial development and not for labour. saving devices which reduce employment opportunities and, create our social problems. Therefore, I only pray to the Government that in view of all these things, knowing the huge population that we have, it is the duty of the Government to see that along with the population growth, there should be industrial growth, there should be increased agricultural production and only science and technology can do it.

Now, the Government has started a new Department of Science and Technology. If the existing opportunities are used properly, I am sure our country will not lag behind in the world and our problems will be easily solved hereafter.

श्री आर० बी० बड़े (खरगोन) : सभापति महोदय, साइन्स एण्ड टैक्नोलोजी की इस ग्रान्ट के बारे में यह जो आपकी पुस्तिका है, यह हमें कल तक नहीं मिली थी। इसलिये मैंने साइन्स एण्ड टैक्नोलोजी प्लान को देखा। इसमें लिखा है--

'Accepting the recommendations of the 3rd National Conference of Scientists, Technologists and Educationists held in November 1970, the Government reconstituted the Committee of Science and Technology (COST) as the "National Committee on Science and Technology" (NCST)."

इस डिपार्टमेंट के बारे में बोलते हुए मैं विशेष रूप से मांग सं० 98 सी० एम० आइ० आर० के बारे में बोलना चाहता हू, जिसके अन्तर्गत 24 करोड़ 73 लाख 20 हजार रुपये की मांग की गई है। इस डिपार्टमेंट पर जितना रुपया खर्च हुआ है, उसमें सी० एम० आइ० आर० पर हुआ खर्च भी शामिल था। यदि आप पब्लिक एकाउन्ट्स कमेटी की तीनों रिपोर्टों को देखें तो आप को मालूम होगा कि शासन ने पैसा तो खर्च किया है, लेकिन उसमे ब्यूरोक्रेट्स और पोलिटिक्स के घुसने से कुछ काम नही हुआ। पब्लिक एकाउन्ट्स कमेटी की रिपोर्ट में लिखा है कि 60 परसेन्ट खर्च फोर्थ-क्लास पर और बाकी साइन्टिस्ट्स पर खर्च होता है। और जब यह देखा गया कि काम नहीं हुआ है तो नेशनल रिसर्च डेवलपमेंट कारपोरेशन कायम की गई। जब उससे भी काम नहीं हुआ तो उन्होंने 'गेट-टुगेदर" सोसायटी कायम की। जब उससे भी काम नहीं हुआ तो फिर नेशनल कमेटी आफ़ सायेन्सेज एण्ड टैक्नालाजी कायम की गई। मैं कहता हूं कि आप कमीशन पर कमीशन, कारपोरेशन पर कारपोरेशन कायम करते जायें, लेकिन फिर भी काम क्यों नहीं होता है। हैण्ड एण्ड हैड, ब्रेन एण्ड टूल एक जगह क्यों नहीं आ रहे हैं? इसका क्या कारण है? इसके लिये पब्लिक एकाउन्ट्स कमेटी ने लिखा है--

"The Committee are of the view that CSIR which was set up with a chain of laboratories to serve as the premier centre for applied industrial research in the country has failed to establish adequate rapport with industry. The expenditure on this organisation since the beginning of the Plan has amounted to Rs. 146.76 crores. But the return on this investment has meagre."

तो इस प्रकार जो रिपर्ट हुई है उसका कारण क्या है? इसका कारण भी लिखा है कि हरएक इंडस्ट्री के साथ मे साइंटिस्ट्स की रिसर्च शाखा खोली गई या नही, प्रोसेसिंग के लिए उनको काम दिया गया या नही? इतना ही नहीं, उन्होंने कहा है कि जितनी इन्डस्ट्रीज हैं उनको प्रोसेसिंग दिया है लेकिन उन्होंने नामंजूर किया। फारेन कोलाबोरेशन से अपना काम कर लिया। विटामिन सी के प्रोडक्शन का प्रोसेसिंग दिया है लेकिन फारेन कोलाबोरेशन लेकर काम किया है। जब उसका कारण पूछा गया तो कहा एक प्रोसेसिंग बिड मिल निकाली है लेकिन आज जब एलेक्ट्रिक पम्प मौजूद है तो बिड मिल्स की क्या जरूरत थी। उसकी कीमत साढ़े तीन हजार रुपए है। जब किसी ने किया नही तो पंचायतों को मुफ्त मे दिया। दूसरे उन्होंने सोलर चूल्हे निकाले, सूरज की गर्मी से जो चालू हो सकते है लेकिन उसमें भी कोई सक्सेस नही मिली। तो रिसर्च कौन सी होनी चाहिए उसका कोई सब्जेक्ट उनको दिया नहीं गया। दूसरी तरफ ब्यूरोक्रेसी की हालत यह है कि जो हाइयस्ट आफिसर्स थे वह अपने नाम पर रिसर्च करके देते थे और साइंटिस्ट्स को डिसकरेज करते थे और कहते थे कि तुम्हारी अभी ज्यादा सर्विस नहीं हुई है तुम को प्रोमोशन नहीं मिलेगा। तो जो नेशनल कमेटी है उसको इस विषय की ओर भी ध्यान देना चाहिए। यदि वहां पर हार्टबर्निंग और प्रिजुडिसेज चलती है तो उसका परिणाम साइंटिस्ट्स पर बुरा होता है। यदि वहां पर ये बातें न हों तो सी० एस० आई० आर० का काम ज्याद अच्छा हो सकता है। किसी ने

[श्री आर० वी० बडे]

सी० एस० आई० आर० को कौंसिल फार दि सप्रेशन आफ इंडिपेंडेन्ट रिसर्च का नाम दिया है। वहां पर जो इंडिपेंडेन्ट रिसर्च होती है उनको कैसे सप्रेस किया गया है उसका थोडा सा इतिहास आपको पब्लिक एकाउन्ट्स कमेटी की तीन रिपोर्टस में मिलेगा। लेकिन उससे भी अगर आखें नहीं खुली तो नेशनल कमेटी में कोई फायदा नहीं होगा।

सी० एस० आई० आर० के अन्दर मैसूर से लेकर हैदराबाद तक 30 लेबोरेट्रीज हैं लेकिन उनसे रिजल्ट क्या मिला? सारा पैसा खत्म हो गया और कोई टैंजिबिल, ठोस, रिजल्ट नहीं मिला। जो इंडस्ट्रीज हैं यदि उनके पास में ही या उनमें ही लेबोरेट्रीज खोली जायें तो उसके रिजल्ट अच्छे रहेंगे लेकिन उसकी तरफ कोई ध्यान नहीं दिया गया। सरकार कमेटी ने ठीक कहा था कि रिसर्चेज किस प्रकार से इंडस्ट्रीज पर सप्लाई होगी यह ध्यान में रखना चाहिये लेकिन उस पर किसी ने ध्यान नहीं दिया। (व्यवधान)... बंबई में कल्याणी ने इन्होंने क्या किया? वहां पर इन्होंने जमीन ले ली और दो स्टोरी बिल्डिंग बनाली लेकिन फिर उसके बाद दूसरी जगह ले ली। उस पर जो 1 लाख 28 हजार का खर्चा हुआ वह वेस्ट गया। इसी तरह हैदराबाद में भी किया। मैं समझता हूं यदि आप पब्लिक एकाउन्ट्स कमेटी की तरफ देखेंगे तो आपको मालूम होगा कि कौन सी गल्तियां हैं जिसके कारण सी० एस० आई० आर० फेलियर हुई। तो नेशनल या इन्टरनेशनल नाम देने से कोई फायदा नहीं होगा।

इसी प्रकार से इन्होंने जम्मू में इंडियन इन्स्टीट्यूट फार बायोकेमिक मेडिसिन्स के लिए एक फार्म बनाने का भी विचार किया। वहां पर भी 18 70 लाख का नुकसान हुआ। वहां पर एक बागीचा लिया और वनस्पतियों से मेडिसिन निकालने की कोशिश की लेकिन उसपर भी नुकसान हुआ –वह भी रिपोर्ट से दिया हुआ है। शासन ने इस पर कोई ध्यान नहीं दिया। इसका कारण यह है कि शासन इस ओर ध्यान नहीं देता है। इसलिए वहां जो रिसर्चेज होती है, वह विटामिन तैयार करने की हो या अटामिक इनर्जी की हो, वह भी इसी मिनिस्ट्री के अन्दर रहनी चाहिए। एटम बम तो आप बना नहीं रहे हैं, इसलिए उस इनर्जी से आप दुर्गापुर के बडे-बडे कारखाने चला सकते हैं उस इनर्जी को आप पीसफुल परपज के लिए, शान्ति के लिए इस्तेमाल कर सकते हैं। इस यानी टेक्नालाजी, का अन्वेषण करने के लिए एक ही मन्त्रालय के अन्तर्गत कार्य होना चाहिए। आज उन साइन्टिस्टों के पास साधन नहीं, तो उनको दोष देना ठीक नहीं है। अब नई मिनिस्ट्री कायम की गई है वह देखे कि क्या बात है। सरकार कमेटी की रिपोर्ट को देखे और फिर उस बारे में सही योजना बनाकर कार्य करे। जनता की गाढी कमाई का पैसा जो है उसका वेस्ट नहीं होना चाहिए। इतना ही कहकर मैं आपको बधाई देता हूं कि अब एक नई कमेटी फार्म हो गई है और अगले साल मालूम पडेगा कि इस कमेटी ने क्या किया है। फिर उसके बाद ही रिसर्च का लाभ हमें मिल सकेगा। सभापति महोदय, मैंने देखा है कि 441 पेमफिलेट और रिसर्च हुई उनमें से एक भी काम नहीं आई। सिर्फ विटामिन सी की ही रिसर्च काम आई। वैसे ही और भी रिसर्चेज की हैं। लेकिन उनमें अच्छी ठोस रिसर्च कोई नहीं हुई है जैसा कि रिपोर्ट में बताया गया है। जनमत वाले भी चाहते हैं कि इसकी उन्नति हो इसलिए मैंने आपके सामने ये बातें रखी हैं। अंत में शासन से निवेदन करूंगा कि जितनी भी डिफिकल्टीज हैं सी० एस० आई० आर की उनको दूर किया जाय।

SHRI RAJA KULKARNI (Bombay—North-East) The establishment of a full fledged Department of Science and Technology under the Ministry of Planning has been a very appropriate step in the development of our socio economic change This is the beginning of a national policy which brings together economic and social plans in close link with the development of science and technology It also brings about a new accelerated pace for both the development of science i self as well as for the development of the agricultural and industrial economy in our country

I am not going into the microscopic distinction between science and technology. They have been brought together under the supervision of one Department. It is not necessary also to go into this just as in the field of ideology, it is needless to go into the distinction between principle and policy. We are in the midst of an act of transformation which stage is not suitable to go into these distinction between Science and Technology. We are not immediately concerned whether science is pure, abstract theory and technology an applied science. We are not concerned with these differences. This Department has been created to solve the problems arising in about 21 areas of the socio-economic field, with the application of scientific inventions and technological advances. We are facing difficult problems in the plans and activities of family welfare, health, housing, urbanisation water and power supply and industrial and agricultural production. These are the problems for the solution of which the application of science and technology is required Therefore, in one sense, this is a step which has brought science from the realms of academicians and theoreticians to the practical tasks facing of the people in the fulfilment of their needs This is a very bold step the Government have taken.

I remember the discussions that were going on before this department was created. The point was discussed whether Government should take control and there should be a coordinated and integrated approach towards development of science and technology. Many scientists, technicians and educationists who attended the conference said : 'You are bringing too much politics into it by creating such a department'. This was not so. The whole development of the last 20 years of science and technology in our country was in a state of stagnation. We had no doubt a number of infra-structures and agencies. We are doing work aided by grants from the UGC which was encouraging a number of departments in various universities for higher education and helping to establish various technological institutes. These were all created. Higher education was given to the youths. They were educated and trained. Then came the phenomenon of their talents being left unutilised. Our country faced the problem of brain drain, Educated youths could not get themselves absorbed in the country, they had to go abroad and stay there. We had spent lots of money in establishing these institutes of technology and more in training these youths in the various branches of science and the technology.

People could not understand the significance of the development of science and technology. The research that was being carried on in various national laboratories had no meaning for them. They could not see the close link between research in the laboratory and its application to the problems of their practical life *i.e.*, the socio-economic problems.

It is this department which has to accelerate research and development for solving our social and economic problems. Therefore, science and technology today has become an instrument of national economic growth. There is now no danger of science and technology becoming a handmaid of the capitalists. This danger was there during the last 20 years when capitalists used to take advantage of technological advances in automation, for example, for increasing their profits A problem was created in the country and the question arose to what extent Government and society should bring about social control and regulation in the development of science and technology, for example the introduction of automation in industry or the computer. We had the problem of the computer. A committee has been working on it. We would like the Committee to lay down a policy in regard to automation in industry and the computer in office work. There is necessity for a national policy in this regard. Though we are backward, though there is an abundance of human labour and there is the problem of unemployment, yet, people will support the development of technology and science as an instrument of national economic development, but not as a handmaid of the capitalist forces in the country.

SHRI JYOTIRMOY BOSU (Diamond Harbour) : Sir, I rise to make a few suggestions, because the time is too short, The Geological Survey of India is now under the Department of Mines and Metals. Now, there is a suggestion that the groundwater survey section should be brought under the purview of the Ministry of Agriculture. I feel that that ought not to be done. The Geological Survey should be left as a body of scientists as they are now, and it should be brought under the CSIR under the broad compus of the Planning Commission. That

[Shri Jyotirmoy Bosu]

is my suggestion I hope the hon Minister will consider it

I want to ask from the hon Minister—I hope he will give me the answer when he replies—what they are going to do about tackling this problem of brain drain and also attracting our Indian scientists who are working with great success abroad Unfortunately, in this country, the bu eaucrats still dominate over the scientific institutions, and science and technology has been forced to remain within the four walls of its academic campus

Imagine this diesel fuel saving device of Suri who had to obtain a patent in West Germany , it could not be developed in this country, neither could it be utilised If you want to make use of that Suri's device in this country, you have to pay a reyalty to the German producer That is a matter of regret

Similarly, with regard to the invention of streptomycin by the famous, late Dr Subba Rao of the Leder'e laboratory It could not find an outlet, and he had to go to America to find a market, and the Lederle laboratory's products are being bought by us at hundred times more than the cost of production That is again a matter of regret

When Suri's devices are patented in India, we are paying the American consultant, for the development of diesel engine and its production in Banaras,—a royalty to the consultant—to an extent of not less than Rs 6 crores in foreign exchange That is the unfortunate position

It is not chaos, as my hon friend comrade Indrajit Gupta had said, but it is because of a severe domination by foreign monopoly interests in the field of science and technology in the country

Take, for example, jute, Jute could be processed and bleached into an item which would be much more precious than what it is today You are giving a big sum as royalty to the laboratory in America, namely, Debham Textile Laboratory, You obtained the result that jute could be used for making garments for human beings It could be made into a much more precious thing Today, you sell them at the rate of Rs 50 to Rs 70 a maund If it is processed and bleached, you could get perhaps Rs 700, or Rs 800 or Rs 1,000 a maund In all cases we are losing billions of rupees through import as well as incomplete export I do not want to say anything more on this

About technical education, I want to make a small point I feel it should come under the Education Ministry When we have devoted more time and energy for the production of graduate engineers, in certain cases we are falling short of artisans What are you going to do about that ? About establishing more polytechnics and giving more scope for artisans, what are you going to do ?

That is all I want to say

SHRI B R SHUKLA (Bahraich) Mr Chairman, Sir I welcom the separation of the Department of Science from the Ministry of Education and its being placed under the Ministry of Planning

The poverty of a country cannot be removed unless the scientists and technologists make their full contribution to the progress of the country, and the Planning Department and the Department of Science and Technology have to work hand in-hand, hand in glove, with each other in order to bring the desired good to the country

The extent of neglect to this subject is indicated by the strength of the Members in this House as well as by the press in the press gallery

AN HON MEMBER What about Ministers ?

SHRI B R SHUKLA This subject of science and technology has been relegated to the background The uppermost thing in our mind has been the rule of politicians or the role of the bureaucrats

This department has been created with a view to integrate the functioning of different agencies engaged in research and investigation work in the field of science and technology. For example, there are scientists engaged in agricultural research, medical and health research or engineering investigations These departments are working in isolation, not in

co-operation. Sometimes one does not know what progress has been made in another department. Now-a-days we cannot say as to research in one subject would have what bearing on another subject. Take for instance medical research. Physics was supposed to have nothing to do with medicine but today it plays an important role in the detection of diseases affecting the heart, besides playing a significant role in the detection of cancer. New Sciences likes bio-physics and bio-chemistry have developed. They interact against each other.

Similarly, there is mathematics. Mathematics could not bring in quick results because research by its very nature is a series of trial and error based continuous experiment. Therefore to judge the success or failure of the department of science and technology in terms of commercial value would not be proper.

The task before this department is two-fold—firstly, to promo e fundamental research in pure science because pure science would pave the way for applying the results in the field of economic and industrial growth Therefore we should not grudge allocation of money for fundamental research in pure physics, biology or botony.

Then there is the field of technology. Knowledge for knowledge sake has been the objective or dream of scienlists, philosophers and thinkers from the earliest times in recorded history. But knowledge which remains divorced from realities, without any application to the betterment of human life would be useless and fruitless in the context of the developing economy of our country We are a poor people ; we go without medicine, without clothes, without adequate houses. There are challenges on all these fronts and a team of devoted scientists and technologists could make a significant contribution. We have to obtain quick results in these fields. How is it to be done ? We have to encourage the scientists. Scientists by their very nature are very shy persons and are not trained in the art of manipulating things in order to get a job here or there. Therefore, they do not get that much recognition at the hands of the society or at the hands of the administrators. We have to encourage and create a climate in this country where the devoted talents of scientists and technologists would find sufficient scope for the display of their merits, thereby serving the country. There are very few scientists in this country. Very few have attained that eminence, and it is an unfortunate state of affairs that we have not been able to utilise all the talents of this microscopic minority of the scientists and technologists.

In this connection, I recollect the case of the late J.B.S. Haldane. He was an eminent botanist of international repute. He adopted this country as his own motherland. He wanted to conduct research in this country, but under the restrictions and conditions imposed by our bureaucracy which was controlling even the activities of the scientists, he could not carry on smoothly, without fear or favour, his researches in the realm of botany.

I welcome this brochure which has been circulated on behalf of this Department. It says that it is not an account of performances, but only a prospectus of things to be done. It has enumerated quite significant things like research in oceanography. There is a vast realm of unexplored phonomena in the sea bed. We can raise food material from the creatures which live beneath the water. We can also successfully plan our navel strategy by exploring the sea bed. Similarly, this booklet has also mentioned programmes for the Geological Survey of India, the Botanical Survey and the Zoological Survey. These are topics for the scientists, but as a lay man I only wish to submit to the Ministry that a climate should be created in this country where the scientific talents can be mobiised. An environment should be created in which they should be free to think, free to act and free to integrate the fruits ot their researches, so that they may bring about a coherent scheme of things in which planning can be quickened, in which social justice will be possible, in which the war against poverty, disease and squalor can be successfully fought.

SHRI S. M. BANERJEE (Kanpur) : I am extremely happy that this Department has been formed and that it has been separated from the Education Ministry. I must say that this was the dream of the late lamented Pandit Nehru who wanted a separate Department for scientific advancement. Had he been alive, he would have been the happiest man today. Many other hon.

[Shri S M. Banerjee]

Members have referred to the utility and futility of the various scientific orgainisations in our country CSIR had also been criticised. I am sure that with the present Chairman of the CSIR and the scientists around him things are bound to improve. This criticism is getting on our nerves and I think the politicians are mainly responsible for such criticism. It affects not only the scientists but every person in this country. I can also say with confidence that if politicians keep their hands off these things the position will improve.

The Sarkar Commission Report is before the government and I am sure they will take note of it and make the best use of this report to see that this particular institution, which was the envy of foreign dignitaries who came to this country right from the scientist to the technologist, maintains its old reputation The foreign visitors had a very high opinion about CSIR and the national physical laboratories.

Two things which attracted people, whether from the socialist countries or non-socialist countries were the national physical laboratories and the national fitness corps. The national fitness corps has ended in a fiasco. I do not know what is going to happen to the national physical laboratory.

During the emergency we have seen that the CSIR functioned well. But we want more coordination between the CSIR and the defence science laboratories. I think many things could be produced by them because India is moving towards self-sufficiency. If we are to take the self relience slogan seriously and if we have to improve our position in this country then the CSIR can give the lead. In that context, I would request the CSIR to have better coordination with the defence science laboratories so that we can possibly have many things made here, especially in the defence field because defence of the country is the need of the hour.

Secondly, whenever we go to foreign countries, whether socialist or non-socialist we find many talented young Indians working there. They want to come here and work but they are unable to get any employment. We were told that they are going to stop the brain drain but I do not know what has happened to that. Even those Indians who come back to India to serve the country go back frustrated and disgusted to the country where they were working earlier because they could not get any employment here. Even though they are hated by the people of the countries they work, like America and Canada, they go there because they want food and also a better job. I want to know from the Minister that with our new slogan of self-reliance whether we are going to allow our scientists to go abroad for want of job here. Should we not ask them not to depend on more dollars or whatever facilities they get abroad but work here for the sake of their motherland ?

Lastly, I come to the Survey of India, which is also under this Ministry. The Director of Map Publications have done a very good job The hon. Minister knows that the union, of which I am the President, has given the maximum co-operation during the wars in 1962, 1965 and the fourteen-day war of 1971. So, it is high time that recognition is given to this union, whose member has been elected to the national council The hon. Minister should consider this question sympathetically and give recognition to this union.

With these words, I would like to assure all our co-operation to see that this Ministry prospers. I am sure that with the present officials, some of whom have come from England, with the Additional Secretary and some other officers of eminence, with their co-operation and support this Ministry is going to prosper. With these words, I would again request the Minister to say some words about the Survey of India in his reply because the employees of the Survey of India have worked to the entire satisfaction of the people.

MR. CHAIRMAN : Shri B. V. Naik. Absent.

18.00 hrs.

The Lok Sabha then adjourned till Eleven of the Clock on Friday, April 14, 1972/Chaitra 25, 1894 (Saka).

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