ful purposes Though the previous speakers have most emphatically stated that this energy could be utilised for peaceful purposes, I bring to your notice the statement of our Rajaji He said that there were potential dangers involved even in the peaceful use of the nuclear material To decide this controversial issue, it would be most proper that the matter be left to the experts and the scientists

13 hrs.

Lastly, I associate myself with the sentiments expressed in this House regarding the stoppage of nuclear test explosions A resolution to this effect has already been passed in this House during the last session, and we would like to know how far the matter has been pursued by Government in the United Nations Organisation or in similar bodies, and what the result has been

Since this is a very powerful weapon, I humbly submit that the know-how of atomic power should best be utilised for the good of the people lest it should turn out to be like a loaded pistol in the hand of a small baby

Shri Narasimhan. Owing to want of time, I am not able to say all the things that I would like to say But I would like to ask for clarifications on one or two points

In the brief reports of the activities of the Atomic Energy Department, at page 9, it is mentioned that

> 'Senior and junior fellowships tenable for foreign workers have also been instituted in the following categories There has however been no response to these fellowships"

These fellowships are for Rs 400 and Rs 250 respectively I would like to know why there was no response, whether qualified people did not apply or whether the fellowship amounts were not attractive

Then, there is reference to air monitoring to find out the pollution of the air, and to what extent radio-active dust has fallen and so on But I am anxious that there should be sea monitoring also In view of the fact that we are having these test explosions in and around the Indian ocean, studies have got to be made also of how the marine living creatures are affected It is stated in the literature that has been furnished to us that the radio-active pollution of sea-water may be considerably low, but the fish and other living creatures in the sea are able to absorb and concentrate the poisonous material Strontium, and if these fish etc are taken as articles of food, they would prove to be very dangerous Just as in the human system, the throat glands collect iodine, likewise, the fish also have the knack of collecting this poisonous Strontium, though water pollution is generally very much below the danger point I would, therefore, like to know what precautions are being taken in and around our coastal zones in this regard, and what steps have been taken to find out whether the animal and vegetable kingdoms living under the sea are affected either below danger point or above danger point This has to be watched to a considerable extent I would like that some money is spent on this also

Before the world-wide agreement was arrived at about atomic research, it was the usual practice to keep all this literature about atomic energy and radio-activity and so on a complete secret, that is, literature about discoveries and other things In India we have the Atomic Energy Act Now that there is a general agreement on this matter throughout the world —I do not know whether we shall be justified in doing so I would suggest that this secrecy should be gradually relaxed, there should be no hush policy about it so that science in this country can grow without suppression

The Prime Minister and Minister of External Affairs (Shri Jawaharlal Nehru) Mr Speaker, Sir in the course of this discussion, almost everyone has emphasised the necessity for us to go ahead as far as we can in the

[Shri Jawaharlal Nehru]

development of atomic energy in this country. The subject is naturally one which rather excites the imagination of everyone, and there is a feeling, as someone has said, that in this matter at least we should not lag behind, as we did, when the industrial revolution took place. I can say nothing more about it except that we have no intention of lagging behind, in so far as resources etc. permit.

Apart from the theoretical as well as practical necessity of keeping abreast of this new realm of knowledge and discovery, there is this aspect that from the power point of view, it is likely to be of the utmost importance for us in India to utilise the atomic power for peaceful purposes. We hear a lot about the use of iron and coal and oil for purposes of power. But it is rather a sobering thought that if by any chance, we used our power supplies at the rate, let us say, that the United States is using them at—which is a tremendous rate—, they disappear in a very short time, and we finish them up in the course of a generation or more—I forget exactly how long.

Shri Naushir Bharucha (East Khandesh): Thirty-five years.

Shri Jawaharlal Nehru: It may be twenty-five or thirty-five years. It does not matter.

So far as we know about the coal we have, and the oil we have—we now hope to have more oil than we thought first, and I believe that we are likely to discover oil in several parts of India—the fact remains, however, that our power resources potential, considering our population, is not great, for we cannot merely deal with the present generation, but we have to build for the future.

Now, therefore, as far as one can see, the main source of power, apart from the conventional sources has to be atomic energy. So, it becomes a question of extreme practical importance for us to develop power from atomic sources.

It is curious that only about, perhaps, three or four years ago, people talked rather vaguely about using atomic energy for power purposes, and there were hardly any definite plans in almost any country, although, no doubt, in the United States and England and the Soviet Union, there were some efforts being made to that end. But the progress since then has been so rapid in some of these countries, that now, it is taken for granted, which it was not then. Then, it was a kind of adventure in the sense that it could be used for civil purposes. But it was not an economic proposition. Today it is recognised that it is an economic proposition, and it is likely to become more and more so.

Of course, at the present moment, at any rate, no one would think of our going to a coal-field, let us say, and putting up an atomic energy plant there. That is, if you are near the source of power, that is, coal or some hydro-electric concern, you would not put an atomic energy plant right there. That will be wasteful. But where you go away from the source, go away some distance from the coal-fields or from hydro-electric power, where, in fact, you may have to take vast quantities of coal to create power, there, even today, it might well be cheaper to have an atomic energy plant.

Take Delhi. We have to put up something here. We have to bring coal from 800, 900 or 1000 miles away. There is the question of transport and so much of cost.

I would make two points. The first is that India must have some additional sources of power, apart from conventional sources, if it is to go ahead and give higher standards to our people. Secondly, it is possible to do it through proper development of atomic energy now. Therefore, the third point comes out and you must try to do it. Indeed, we are trying to do so.

Many hon. Members who have spoken have congratulated the Atomic Energy Department on the work they have done. Some have criticised them or said that they ought to do much more than what they have done. It is not very easy to have a correct measurement of what one can do and one could have done if we had proceeded differently. But the fact remains that the development of atomic energy work in India has been remarkably rapid and, if I may say so, remarkably good. Both facts have to be borne in mind. As to whether it could not be better or whether we could not be more rapid, it is open to one to have an opinion. But the Atomic Energy Department as such was started three years ago in August, 1954. Of course, before that there was the Atomic Energy Commission, which also did that work.

In August, 1954, I think we spent about Rs. 1·1 crores on atomic energy work here. Money is not much of a test, but still it helps us to understand what we are doing. Two years after that, that is, in the current year, we are spending 12 times that amount. It has increased twelve-fold, and we are spending about Rs. 12½ crores.

I may inform the House that nobody in the Government of India—neither the Finance Ministry nor any other Ministry—anxious as we are to have economy to save money, has ever refused any urgent demand of the department. Sometimes, it may be that we may suggest to them that a particular item may be spread out. I saw the other day a very big figure for a huge wall round the whole area, mile upon mile of it, which, I suppose, is necessary because one has to protect these things; but it may be that the wall might be postponed for a little while. But we have not come in the way of the development of this department and of the work it does from the financial point of view. We do not propose to do so.

Naturally, there are certain limits beyond which we cannot go. Anyhow, we realise completely the importance of this work both in the present and even more so for the future. It is really because of that that in India and in some other countries, it is usual for the Prime Minister to be in charge of it. Not that the Prime Minister of India or any other Prime Minister is supposed to be peculiarly brilliant or suited for that purpose, but in order to show the importance attached to it. Therefore, the Prime Minister takes charge of it.

In doing atomic energy work, there is of course the side of research and there is the practical side of the application of that research. So far as research work is concerned, the Tata Institute is the principal institute. Of course, research work is done in Universities and Colleges etc. I entirely agree with an hon. Member who said that this kind of work should be encouraged in the Universities, though I would add that what is necessary in the Universities is a sound grounding. Sometimes there is a tendency for a person to try to do higher research work without an adequate grounding in the basic position in various sciences, specially atomic physics. That is not, I think, a very good way of proceeding but we must have a broad foundation in the Universities necessarily for training in atomic physics etc. out of which specialists will come. Apart from that, we have, as you will have seen from the printed paper that has been circulated, increased the number of people being trained by the Atomic Energy Department. I believe the present number is about 260; it will go up to about 1,000 very soon.

One must remember that this training is not some kind of simple training but rather high class training of high class men who are chosen. It is a fairly good number which will go on growing. I think that the work we have done, both in the realm of theory and research and in practice, has not only been appreciated in various centres of atomic energy work in the world—important centres—but there have been many references to it elsewhere.

[Shri Jawaharlal Nehru]

Whenever I travel abroad, I am particularly asked often enough by scientists of the countries I visit about our work. I am told by them how much they appreciate the rapid progress that we have made. Only about a month or six weeks ago, I happened to meet more than once a person who is almost the father of all this business, Prof. Neils Bohr, in Norway. He has spoken in the highest terms about our work. He has not been in India; naturally he keeps himself informed. In the field of atomic physics, he is a kind of semi-god or high guru. He is an old man who has done so much and is highly respected. He spoke in the highest terms to me about what we were doing. He was very pleased and he sought to make out that they in Norway were trying to do something which we had already done. That may be just pure compliment, but I do not think it was. It is a fact that we have done rather well. That does not mean that we should not do better.

I wanted to say this because we have got very fine young men doing this work, not a question of one or two or three top men. I am talking about the considerable number of young men, some of them quite brilliant.

Shri Tyabji referred to Indians being abroad and asked why they were not in India. I can give him no particular answer to that except that I would like to see our noted scientists, noted Indians, come and work in India and help us in developing various important activities. So far as scientists are concerned, we have definitely tried to do so. He mentioned two names, Shri Gupta's and Shri Chandrasekhar's. I might inform him that in the course of the past few years we have made numerous attempts to get these gentlemen as well as others and on several occasions they had agreed to come. There has been agreement, then there has been refusal, then there has been agreement and then has been refusal. I do not want to go into details. But anyhow we are well acquainted with them, and we have made attempts to get them here. But in the totality of circumstances they prefer to remain outside even after agreeing once or twice to come; they changed their mind. It is a little difficult for us to compel a person to come here. Of course, I can understand the conditions in India previously, Indian scientists not having enough opportunity to develop their talent or genius here, and their going abroad suddenly when they got opportunities. We got no opportunities. But that can no longer be said to be so. We cannot—never in the course of the near future—compete with countries like the United States in the salaries that may be given or the other amenities that can be provided. We cannot do it. India has not got the finance. They can give very big salaries; they can afford it. But, we cannot. I recognise that the labourer is worth all his hire—rather, I mean the other way about that he should be paid enough to live, to do his work, comfortably, not with financial worries. We recognise that scientists or other people of that type should be paid adequately. That I recognise; but we cannot compete with others and ask someone who may be getting some kind of salary in America to come here, and say: We will give you more than that; come over here. That we cannot do. We cannot compete in that way.

So, we do want our young men to work here, to come and work here even if they are working abroad and there is plenty of room here in our various National Laboratories—apart from Universities—in our National Laboratories and other national institutions

Then, Shri Tyabji asked, how many research papers have been contributed. Well, I could not give him the exact number. But the fact is that quite a considerable number of papers indicating research done have come out of the Tata Institute. I am told some of them are rather of a high class. Of course, it is obvious that you do not judge of an Institute or of an

individual by the quantity he writes but rather by the quality. A person may write a hundred papers and they may be second-rate or third-rate. Another may write ten and they may be first-rate and they may be acknowledged as such. I do not say that more cannot be done. But the fact remains that in this realm of atomic energy good work is being done in research, in theory and in practice.

The putting up of the Swimming Pool Reactor, which was opened by me last August—to which we gave, I think, a very proper name 'Apsara'—was built entirely by Indian scientists and Indian engineers and that was a good piece of work. Now, two other reactors are being built, the Canada—Indian reactor and the other one.

I believe, in our research work at the Tata Institute, among other things, at least one new elementary particle has been discovered. At the Institute, at least one new decay process for an elementary particle has been discovered, apart from helping in establishing a number of other processes. The Tata Research Institute, the Institute of Fundamental Research is recognised the world over as one of the leading research institutes in mathematics and physics.

An hon. Member asked something about fellowships. I am told that there had been a response to fellowships for Indians offering Rs. 200 to Rs. 400 per mensem. But there has been no response to fellowships for foreigners. This is because the amounts are much less than those offered by other countries. It is, I believe, intended to raise these amounts.

The Atomic Energy Department is planning for the next 15 years looking ahead. We have Uranium here, though not at present in very large quantities. But, we have vast quantities of Thorium. Thorium is of big importance and can be used for working reactors, but only in the second stage. In order to reach the second stage, you have to go through the first stage with Uranium reactors. And, it has become necessary, therefore, to start with these natural Uranium reactors so that later you may get to the next stage of Thorium which you have fairly in abundance, not only in Kerala, as we all know, but, even more so than there, in Bihar now.

There is one aspect which I should like to mention, which has some kind of political bearing. That is, how necessary it is for us not to depend too much on outside sources. If we depend too much for fissionable material or the rest, then, inevitably, that dependence may affect us; or other people may try to affect our foreign policy or any other policy through that dependence. It is not good, in a sense, to depend on others. That is why, when discussions took place about the formation of what is called the International Agency for the development of atomic energy for peaceful purposes, we had this specially in mind. If we have to depend too much on some central pool which contains these very special fissionable materials like Uranium 235, Plutonium 233, to be used for future atom bomb programmes, then, we have to submit to all kinds of safeguards. These very things are necessary to make the atom bombs. We do not now make atom bombs or anything like that. In fact, we have declared quite clearly that we are not interested in and we will not make these bombs, even if we have the capacity to do so and that in no event will we use atomic energy for those most destructive purposes. I declared that and I was quite sure in doing that that I represented every Member of this House. And, I hope that will be the policy of all future Governments whoever is in charge. But, anyhow, the fact remains that if you develop adequately and get these fissionable materials and if you have got the resources, then, you can make a bomb too, unless the world has been wise enough to come to some decision previously to stop this kind of production of bombs.

Therefore, there is a grave danger that if this fissionable material is kept in the hands of a particular agency which is more or less controlled by a

[Shri Jawaharlal Nehru]

particular group of powers—all other countries to that extent are dependent—what might be called atomic colonialism might grow up. Something of that type. One wants to avoid it. Of course, one can never wholly avoid the fact that a strong country is strong and a weak country is weak and a country financially or militarily strong throws its weight about and does throw it about. But, nevertheless, we do not want that, as far as possible, to come into this. There was some reference to one or two other matters. One thing was about the Travancore Minerals Company Limited. This Company was established by an agreement between the Government of India and the Travancore-Cochin Government to take over the Travancore Minerals Concern and was operated by the T.C. Government so as to improve production methods and increase the production. The shares of the company are held in equal amounts by the Central and the T.C. Governments It is run by a board of directors—these are the old rules—comprising three representatives of the Government and three representatives of that Government with a Chairman nominated by the Government of India Dr. John Matthai was appointed the Chairman of the Company.

Now, since the redistribution of the States, what has happened is this. After the partition of the T C. State, the southern part, Chavara (Quilon) is with the Travancore-Cochin State whereas the other part, Manavalakkurichi passed to the Madras Government. The former company has been taken over in essence by the new company, that is Kerala Company. The Madras Government want one of the Travancore-Cochin directorships on the board while the Kerala Government is of the view that that directorship should be in addition. The Government of India has agreed to the Madras Government in this matter, because, the Government of India's share has not been affected by these changes; it is the same. It is the other's share which has been divided up and therefore, it seems reasonable and logical that the Madras Government should share in that. This matter has been negotiated.

I do not want to take up any more time of the House. I am sorry if I have forgotten to reply to any particular point. Much has been said about the use of atomic energy, isotopes, etc. being used for medical, agricultural and other purposes. Naturally, they are being used and we help in every way; they will be used. There is no difference on that I believe considerable progress is being made in that respect and I can assure the House that the atomic energy department is fully alive to its responsibilities and the Government also realises the importance of the atomic energy department and the work it is doing.

Mr. Speaker: So far only one cut motion has been sent to me and that is by Shri Sampath Is he here? Very well, he is not here I have already said that I will deem only those cut motions moved which the hon Members hand over at the Table.

Shri Naushir Bharucha: We do not want to move them

Mr. Speaker: The hon. Member cannot speak for the others. All right, I will now put the Demands to the vote of the House The question is:

> "That the respective sums not exceeding the amounts shown in the fourth column 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, 1958, in respect of the following heads of demands entered in the second column thereof:—
>
> Demands Nos. 97, 98 and 135.

The motion was adopted.