

LORD MARSHALL OF GORING

The Spanish Nuclear Society Magazine has had the opportunity of interviewing one of the world's most renowned professionals, Lord Marshall of Goring.

A theoretical physicist with a PhD from the University of Birmingham, Walter Marshall distinguished himself early in his career for his research work. In 1981, he was named Chairman of the UKAEA (United Kingdom Atomic Energy Authority), and in 1982 he was knighted in recognition of his scientific work.

In 1982, Sir Walter was appointed as Chairman of the CEGB (Central Electricity Generating Board), a post he occupied during the long miners' strike of 1984. Electrical supplies were maintained during that period, resulting in collapse of the strike. Some months later, in 1985, he was awarded the lifelong title of Lord at the recommendation of Margaret Thatcher.

In 1989, he was appointed as the first Chairman of WANO (World Association of Nuclear Operators), an organization that he founded. That same year, he resigned as Chairman of the CEGB after disagreeing with the Government on privatization and nuclear energy policies.

Last April, he resigned from the post of Chairman of WANO to become this Association's Ambassador with special duties in Eastern Europe.



We would like to know what your activities are at the present time.

There are three main things. The thing that is most exciting at this particular moment is the large, new company inside Lloyd's of London which is going to do nuclear insurance. It is an opportunity for utilities to share in the profits of nuclear insurance. At the moment, all the utilities pay large premiums, but there are no accidents, so no claims. And so it is extremely profitable to be on the insurance side of this business, accepting the premiums. So we, by a fortunate coincidence of facts, are able to suggest that the nuclear utilities, in effect, become an insurance company and get the money back that they are paying out. So that is taking a large part of my time now. Another job that I like very much is working in Japan. I'm working for the Kansai Electric Power Company. You remember that three years ago, they had a tube break in a steam generator, and this tube break led to the firing of the emergency core cooling water. This is the very first time that this has ever happened in Japan, and they were humiliated by that experience, because

Lord Marshall of Goring

they want their reactors to be perfect. So they decided to set up a special company to do everything possible to improve their nuclear safety even more. Of course they have a lot of Japanese on it, but they decided they better have one Westerner. So they chose me, and I'm very pleased about that. It's very interesting because I can see how the Japanese think, how they work together, and then join in their process of decision making, which is technically interesting but it is also a very interesting social experience, because Japan is so different.

The third thing I am doing is that I am still working very hard with the Russians and the Eastern Europeans. I think we now have a good project running. I have been telling the Russians for a very long time that they are too passive. They sit in Moscow, and then Western organizations go to Russia and the Ukraine, and then they tell the Russians what they ought to want. But it isn't what they want; it's what the Western company wants to sell. Therefore I have been saying to the Russians for a very long time: "you must say what you are doing and what you want, because you are in effect the customer; even if you don't have the money to pay for it, you are the customer." But they have been reluctant to do that, because if they say what they want, they have to say why they want it, and then they have to admit what are the defects in their reactors.

But finally I have persuaded them, and now we have written some very good reports about RBMK reactors, VVER-1000, VVER-213, and VVER-230. And now the users, the actual Russian utility and the Ukrainian utility, are saying what worries them about these reactors and what they want to do to improve them. We are going to have a conference in Moscow this coming March, where we will publish these documents, and we are going to invite Western industry to come to that conference, and then they will understand what the Russians, the Ukrainians, the Lithuanians and everybody else actually wants. It does not solve the problem because the Russians cannot afford to buy it, but I think this will be quite helpful. Incidentally, I have never announced it before, so you are the first journalists to hear about it. And I hope the Spanish industry will come, and they will then know what the customer wants. They are not reading a Western report, which is a Westerner's interpretation of what they ought to have, and they are not listening to the design engineers in Moscow, which sometimes agree with operators but usually don't. They are actually hearing what the operators want.

They're actually hearing what is going to be done. Then your industry can approach the EEC or the European bank, or perhaps the Spanish government, and see what help they can give. It is not a solution to the problem. In order to solve the problem, I need somebody to give me 5 billion pounds. Then I can solve the problem. It's a first step. Because at the moment, the EEC will employ some Western companies, usually a software company, and they will go to Moscow and they will write a report, and they will give it back to the EEC, and the EEC will send it to the Russian government. The Russian government will put it in the file, and probably the report does not reach the utility at all. If it does reach the utility, they read it and say this is very naïve, they do not understand our reactors, and they throw it away.

What is the role of WANO in Eastern countries?

WANO is paying to be a WANO ambassador to these countries. But the idea of this particular project is that no Westerner is permitted to take part, except myself. Let me try and explain a little bit. If the Russians and Ukrainians want to work together, they can have a friendly discussion on the telephone, but in order to make real progress they need to meet and work out a detailed program. But how can they meet? For political reasons, the Lithuanians cannot attend a meeting in Moscow and vice versa. It is not a matter of hostility, just a matter of principle. So they have a very strange situation - very unusual. If you think about it, it is the natural result of the breakup of an empire.

So we had the brilliant idea that is very, very simple. All these people could come to a meeting if Walter Marshall is chairing it. It's very elementary. But like all good ideas, it's very simple. So now we can agree on a meeting, and we can agree that Walter Marshall is the chairman, and then everybody can meet. But it's a do-it-yourself; they want to do this themselves. They are very tired of Western people telling them what to do. So I am very careful, as the chairman, not to tell them what to do. I keep telling them: "you must make up your mind about what you want to do, then you must write it down in Russian-English, and I will translate it to English-English." So it's quite interesting.

Are Western countries on the right way about their policies on Eastern NPPs?

No, I don't think so. You read a great deal in the newspapers about

Western aid to Eastern Europe to improve their reactors. You read so much about it every week, that you get the impression that something is being done. But in practice, nothing whatever is being done. Russia has not received a single dollar of help; it has just received large amounts of paper. Suppose you have an American team that studies RBMK reactors, and they decide they are worried about the simultaneous fracture of the pressure tubes. That is nothing very special, because this is the classic accident in all pressure tube reactors. So they write a report about it, and say this is very serious and it needs to be assessed carefully how big an accident this could lead to. So they write a thick report and they send it to the Russians, and of course the Russians will say: "Yes of course, we have done those calculations ourselves. Maybe our numbers are a little bit different. We think we can survive four simultaneous failures, whereas you Westerners say you think we can only survive two. Let's agree, it's two, three or four. That's not important; what is important is that we want ultrasonic equipment of that we can inspect the tubes to prevent this accident. So let us not spend time arguing about it." But nobody actually provides the equipment. What they do is say: "No, no, let us work together and make our calculations more accurate so that we can decide whether it's two or three or four or five, to decide how big an accident could we have." But the Russians say: "Well we don't care how big an accident we could have, what we want to do is stop it." That is the nature of the aid which, so far, the West has given to Russia. I believe that is inadequate, and therefore part of this exercise that I am describing to you - the Russians will say we have done those calculations, and our results are this, but now in order to prevent that we need better inspection.

The Russians have a very ambitious inspection program for nuclear power plants. Do you think that the new power plants that they are building introduce the necessary safety elements to make them closer to what we have in the West?

They are overwhelmingly going to build the VVER-1000 plants, which are like Western PWRs. Their design has some good features, but their design also has some bad features. I am sure that those plants are, broadly speaking, satisfactory, but some Western technology could make them very, very much better.

Is it also true that they are going ahead with the RBMKs?

No. There is an unfinished RBMK at Smolensk which is about 80% complete, and it is of the most modern design. So they are taking the pragmatic view that since it is 80% complete, they will complete it. But they will not build new RBMKs starting from scratch.

In any case they are not closing down those which are in operation right now?

Correct, and if I were in charge of Russia, that is the decision I would make, because I think the RBMKs are not as well designed as Western reactors, and therefore if I was able to rewrite history, I would not build them. But I think there are 18 of them in Russia producing 18 gigawatts every single winter, and in Russia the supply of coal from Siberia has failed, and the supply of oil has failed. So if you were President Yeltsin, you have two choices. You order that millions of people shall die because they have no energy, or you keep the reactors running. It's obvious that you keep the reactors running. And I think that is the right decision even though they are not perfect. The thing that would worry me is if the operators were operating the reactors and were overconfident. If they felt that RBMK reactors were wonderful and safe, I would then get very nervous. But they don't think that; they would all prefer to be operating VVER reactors. Any time an engineer on an RBMK reactor gets offered a transfer to a VVER reactor, he accepts like that, even if it means moving his family and everybody, because he realizes that's a move in the right direction. And any time a VVER engineer is asked to move to an RBMK reactor, he says no. That's quite important. It means that the people that are operating the RBMK reactors are sensitive to their responsibilities. They know they have to be careful. That's good.

We would like to know your opinion about the Spanish nuclear industry and Spanish nuclear power plants.

You have put several good plants into cold storage, and now you have plans to decommission them before they have even worked. I think it's a tragedy. Spanish nuclear plants have a very good record, and you have done it very intelligently; you have taken licenses from Westinghouse or GE, but you have done 95% or 99% of the work yourself. Spain has very good engineers. It has a very strong



engineering tradition, and your civil engineers are world famous. But engineering in general is very good. So there isn't any reason why you couldn't have the same nuclear reputation as France. But the politics are different.

What is the future of nuclear energy?

I think it will expand in those countries where there is no choice. So it will expand in Japan, in the Pacific ring - Taiwan, Korea, China. It will certainly expand in Russia and the Ukraine. There's no choice. But for political reasons it will stand still in Spain, Germany and Scandinavia, and in America and Canada, because of the opposition of the public. If you are in a democracy and you have not won the confidence of the public, you cannot go ahead.

It seems inevitable that you have to wait. There's a famous story that is partly amusing and partly depressing. You know that for many, many years, all physics was founded on the classical laws of physics that were laid out by Isaac Newton four centuries ago, when the apple dropped on his head. And the first change to that was made by Max Planck, who postulated the concept of quantum mechanics, and then later on the whole business of nuclear physics grew out of that. They had Born, Einstein and all the great men who developed the subject. But the first man to postulate that classical physics was wrong was Max Planck, and at the end of his life he was interviewed by a German newspaper, and they said to him:

"Professor Planck, at the end of your life when you are now retired, I hope you take great pride in the fact that you convinced people about the correctness of quantum mechanics, and that this was more correct than classical physics." Max Planck said: "No, I never convinced anybody at all." And the correspondent said to him: "I don't understand that; when you invented quantum mechanics nobody had even heard of it, and now at the end of your life everybody believes in it. The whole world accepts quantum mechanics. So what do you mean that you didn't convince anybody?" And Max Planck said: "Nobody ever changed their mind, but those people that believed in classical physics died." So I think the nuclear business is a bit like that. A lot of politicians are against nuclear power, and there are a lot of Green Peace people who are against nuclear power, and I believe that all of these people are incorrect, but none of them will ever change their mind. None of them are ever going to stand up and say: ten years ago I had an opinion against nuclear power, but I was wrong; I now admit I have made a mistake, and I am now in favor of nuclear power. I cannot imagine a British politician ever saying that, and I cannot imagine a Spanish politician saying that. Therefore, it seems to me that in Spain and in Germany, in Scandinavia and in America, the crucial thing is to wait and eventually those people will die. Maybe we will be dead also. But then there will be new people who have never taken such a position, and they will look upon the analysis from a fresh point of view, and they will take a different view.