

SINGAPORE GOVERNMENT PRESS STATEMENT

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TRANSCRIPT OF A SPEECH BY THE PRIME MINISTER,

MR. LEE KUAN YEW, AT THE UNIVERSITY OF SINGAPORE

ON 1ST JULY, 1966, WHEN HE OFFICIALLY OPENED THE

NEW SCIENCE TOWER.

Vice-Chancellor, Dean of the Faculty of Science, Rector of the
Imperial College, ladies and gentlemen,

The last time I met teaching members of the University, I
emphasised the relevance of higher disciplines and skills to our
economic and political future. And it gives me singular pleasure to
participate in the opening of the new Science Tower which has been
made possible by a contribution from the British Overseas
Development Grant. I do not want to sound effusive in these matters,
particularly as we have been reminded that gratitude is not one of the

things the British Government looks for and that it simply does its duty! But, no doubt, ingratitude would be unbecoming on this occasion.

There are three factors which determine the well-being of any nation. First, the natural resources at its disposal; second, the human resources it can marshal, and third, the technological and scientific skills it can exploit in order to bring out the best in its natural and human resources.

Short of wars, the natural resources of a country is fixed factor.

From time to time, people do extend their natural resources and the

temptation to do so is always a very great one. And occasionally, we have troubles about the extension of the territorial waters of countries

from three miles -- which was the length of the first effective gun-

shot or cannon-shot from the shore -- to 15 miles; and, in some cases,

it is many more miles as human beings discover that valuable gases

and oils and other things can be discovered on the off-shore of their continental shelf.

Our human resources are also limited, therefore for us, the way forward is to exploit the virtues that we have. Both in actual size and in actual numbers of population, we may be the smallest nation in Asia. But there is one thing for which we need not be apologetic: the quality of our people. But, quality alone without the training and the disciplines which are relevant, will have no significance for our future well-being.

I would like those who, from time to time, doubt the capacity of a people of about two-million to survive under arduous and perilous circumstances to remember that two-million New Zealanders were able to produce men who pioneered the world in science. The first atom and its mysteries were discovered by a man called Rutherford, a New Zealander. Penicillin was discovered by another New Zealander called Alexander Flemming.

Our own population is near two-million. I am not suggesting that we should go and pilot the fields of unexplored science. But I would like today to remind our scientists of the need to emphasise what can be made relevant in our situation.

Recently, I went on a journey through Europe. And it struck me vividly that Germany which lost the War was economically the strongest power in Europe. This was in spite of the fact that it lost large tracts of territory in the East and in the South, and in spite of a higher density of population, as large German populations were shunted across from parts of Russia and Poland and Czechoslovakia back to Western Germany at the end of the War in early 1945.

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Similarly too, with Japan. Its boundaries have shrunk; its population has increased, but there has been an unprecedented economic dynamism. True, American aid, capital grants, markets, facilities and so on have acted as a catalyst.

But the Germans whom I met recently were quick to remind me that a good number of countries in the world also received such facilities to boost their economy, but they did not have the capacity to exploit the resources placed at their disposal in the same way as a highly-trained and industrially-equipped nation like Germany could do.

This is the lesson which we have to learn. It will be futile for us to put our sights on targets which are not achievable. Great Power status is not for us. But a verve and quality that can help the growth and development in the whole of the region -- through the peculiar circumstances in which we are placed -- will be the strongest guarantees of our long-term security and prosperity.

The Rector of the Imperial College has reminded us of the virtues which we possess. We are not land-locked. We are a centre of a great communications; the crossroads between the northern and

southern hemispheres of the world; between the East and the West, the Indian Ocean and the Pacific, and, all centres of great traffic become centres of great culture, learning and civilization. And it is this factor which we must exploit to our utmost.

I was reminded this afternoon, before I came here, of an article which I had read recently by Sir Solly Zuckerman, the chief scientific adviser to the British Cabinet and to the Defence Ministry. He gave a series of lectures known as the Lees Knowles Lectures in Cambridge which was subsequently published in an English newspaper. And I would like to read an extract from it.

Having discussed the impact of science and technology on problems of population, food, peace and security, he goes on to explain why science alone is inadequate to solve this problem. Sir Solly Zuckermann says, "In theory, the twin problems of population and food can be solved. We are not lacking the scientific knowledge which makes this possible. But the problem is formidable since its

solution depends mainly on social, political and economic factors.

Without stable governments able to develop and impose long-term

educational and economic plans and able to give the plans the

overriding priority they will need, we shall get nowhere. The solution

depends everywhere upon the intelligent co-operation of a country's

people as a whole; and, for this, educational levels will have to rise

well above present standards in most parts of the world. The task of

bridging the gap in a single generation virtually between the Stone

Age conditions -- which still exist in some countries -- and the level

of education that is appropriate to an industrial age is a daunting one.

Parts of New Guinea are almost untouched by civilization. In

countries such as Malawi and Ethiopia again, only between one

percent and two percent of the children of secondary school-age are at school."

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And he goes on to say, "There is a close association between

education and the Gross National Product. In Nigeria, where the per

capita annual income is equivalent to U.S. 64 dollars, less than one person in a thousand has had 12 or more years schooling. In the United States, by contrast, where the average income is US\$2,800 a year, the period of schooling has been surpassed by nearly 300 people in every thousand. In the field of education, as almost everywhere else, the cards are heavily stacked against the underdeveloped nations."

And he goes on to touch upon a problem which, I think, should be very much in the minds of our educators in the field of science and technology: "Even if countries educated in the ways of modern technology succeed in producing a corp of technicians -- leave alone highly qualified scientists and engineers -- they still have the problem of integrating them into the community and the Government machine, and of discouraging their departure to countries offering greater opportunities for the exercise of their talents and skills. The great educational gap between the comparatively few elite and the

masses has also its dangers. Political stability is hard to achieve in these circumstances."

And he ends up by saying, " I have said enough to indicate why I expect that there will be widespread political change over the next few decades and why I fear that political unrest may increase rather than decrease in the years ahead of us. And the most significant implication of the figures I have quoted is the likelihood that the focus of social and economic pressure and consequently, of political change, will for some time continue to be China and the neighbouring countries of the Far East."

What does it mean for us? How many people have we who have had 12 years of schooling? At a rough computation -- if we leave the over 45s out of computation ... today, we have about 10 in a thousand, which means 10 times more than Nigeria, which has one in a thousand. And our average per capita income at about \$1,400 to

1,500 per annum means somewhere about five hundred US dollars -- approximately 10 times that of Nigeria which is about 64 US dollars.

We are all agreed that we have certain natural factors which are working for us. If we took the island of Singapore and put it in the Caribbean -- or, if you like, in the South Pacific -- we could live much more peaceful and tranquil lives. But I doubt whether we would end up as a people with a more satisfying life, with the stimulus of an awakening society making a contribution to levels of civilization and life in this part of the world.

True, like so many other countries, we run the risk of what is now popularly called a "brain drain". The British train their scientists and are unable to give to their scientists, in quite a number of fields, the kind of equipment and facilities which the Americans can. And so, there is a drift of people who want to make rockets or who want to study the mysteries of astro-physics. They gravitate to

the United States because Britain is unable to afford its own people these facilities.

So, let us draw up a list of all these things which we cannot do as well as the big powers -- rocketry, astro-physics, nuclear-physics and let us put our sights on the things which can really matter to us, the things which will make the difference to our economic development. This requires a great deal of careful scrutiny of our possibilities. But let me, by way of illustration, explain how our inability at an earlier stage to assess our possibilities and our needs led to an imbalance.

We are in the centre of a great archipelago of islands, and sea communication is of the essence of life. We have, on this island today, 3 big dockyards: one at the Naval Base, one we run at Tanjong Pagar, another we are building in Jurong. And we have not a single Naval Engineer or naval Architect -- an amazing situation which has arisen through sheer oversight. The first moves were made

to rectify this only in 1961 -- with the result that it will be well into the late 1970s before we can take over completely the whole of our own dockyard in Tanjong Pagar... And, we must always bear in mind if not the probability, definitely the possibility of taking over the enormous dockyards in Seletar, Sembawang and the Naval Base!

I don't want to sound pessimistic, but with everybody becoming very national-minded and wanting to stand on their own, we must make provision for all kinds of contingencies. And this is one contingency which is very real and one for which we have poorly equipped ourselves.

I would like, therefore, to remind our teachers in science of the need for emphasis away from those sectors which will lead our trainees to drift to other countries.

If you train your men in the skills and in the disciplines in which we are unable to offer them meaningful and satisfying

employment, then they must drift away. This is happening all the time.

I was looking at the list of teachers in science which was adequately discussed in this morning's newspaper and I was surprised to see the brain drain from India and Ceylon into Singapore -- which is all to the good. But there is also a brain drain from Singapore to Britain -- quite a number of our specialists are not returning.

There are quite a number of our graduates now teaching in African universities, in places as far away as Malawi where only one per cent of the population received any schooling at all. This is part of our export in the brain drain. And I believe our future depends upon our ability to mobilise the qualities in our population to maximum advantage. It is the one thing we have which makes up for our lack of size and numbers, and it is of the utmost importance that, in the field of science and technology, we should lead the field in this part of the world.

So long as we are able to take better advantage of the resources at our disposal than the bulk of the populations in the region can, it is likely that we shall always be able to make a contribution to improving general standards in the whole area so that it is worth their while -- and more, it is vital to their own continued prosperity -- that we should survive.

If you were to take Singapore away from where it is and park it in the South Pacific... not only would we ourselves lead less satisfying existences, but the impact on the whole region in economic and social terms must be a retrogressive one. It is something which, perhaps, many people find embarrassing, and somewhat difficult of admission. But the skill and the services which we offer to the region mean a quickening of their pace of economic growth. And it is absolutely vital for us to preserve that pre-eminence in modern science and technology, and stable, economic, social and political

conditions which will make possible long-term planning to ensure that we are never one down.

Date: July 2nd, 1966

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