

October 2, 1961

THE MINED CITIES

By Leo Szilard

A. "No, thank you. No more water, please. What year did you say it was?"

B. "1980, Dr. Jones. You have been asleep for fifteen years. I know what you are going to ask me next; please rest assured your cancer of the pancreas is as good as cured; homotoxin is going to do the trick.

A. "Homotoxin?"

B. "Naturally you would not know of the new family of carcinolytic drugs. It is a lucky thing that the late Dr. Carver had the good sense to gamble on something like this coming along and that you had the courage to agree to his suggestion that you be put on ice - figuratively speaking, of course; actually we kept you at 15 degrees centigrade, throughout these fifteen years. We figure you aged no more than three years during all this time.

"You would want to know all about your family, but we didn't expect you to wake up until the afternoon and I won't have the information until later in the day. I happen to know that most of your close family is alive and well and that your brother has become one of the wealthiest men in America; he sold his construction company six months before people stopped building fallout shelters.

A. "You mean I'm completely cured?"

B. "You will be within two weeks. We start treating you today. So far, in two thousand similar cases there has not been one failure. We shall have to treat you free, though, for, I'm sorry to say, your medical care during these fifteen years has completely exhausted your funds.

A. "On what am I going to live then?"

B. "You can get a training fellowship for three years from the National Institutes of Health to study modern cancer therapy; this would bring you up to

date. After that you can take up private practice again. You have been a very good doctor, people are remembering that; you will have more patients than you can handle.

"Also, if you stay here in Denver you will get \$3,000 each year -- tax free. Every family residing in Denver gets as much because Denver is a mined city. This will permit you to save \$9,000, in the three years you are holding your fellowship.

A. "What is this? What do you mean by 'Denver is a mined city'?

B. "I forgot you wouldn't know. There are fifteen mined cities in America, with an aggregate population of twenty million, and there are an equal number of equally large mined cities in Russia. There is a hydrogen bomb located in a little fortress below Denver. Naturally the crew manning the fortress is made up of Russians, just as the crews manning the fortresses below the mined Russian cities are made up of Americans.

"All atomic and hydrogen bombs, except those located below the mined cities, have now been destroyed. All submarines capable of firing rockets have been scrapped. The shelter construction program, which has cost us five billion dollars per year has been abandoned, and we save another ten billion dollars a year, because we do not have to maintain any strategic striking forces, any longer. That is why the Government can afford to pay \$3,000 a year, tax free, to each family residing in a mined city. There are five million such families receiving a total of fifteen billion dollars. This money is paid to them as a compensation for the anxiety which they may suffer whenever they pause to contemplate what would happen to them in case things went out of control.

A. "What about the strategic air base in Colorado Springs?

B. "It is gone.

A. "Is Denver in any greater danger, now that it is mined, than it was before, when there was the ~~strategic~~ air base nearby?

B. "No, of course not. And this is why the Administration was at first reluctant to include Denver among the cities who receive compensation. But in the end Denver was treated like all other mined cities; the President needed the votes of the two senators from Colorado to pass the Federal Aid to Education Bill.

A. "Did the bill pass?

B. "No, it didn't.

A. "What would happen if the Russians tried to blackmail us by threatening to blow up one of our mined cities?

B. "We would threaten to blow up one of their mined cities.

A. "Could they not overpower the American crews manning the fortresses below their cities?

B. "No, they could not; not without risking that the crews would first blow up the city.

A. "How do we know that the Russians have not hidden away hundreds of bombs and rockets in secret?

B. "We have a very good inspection system. We largely rely on Russian citizens, and particularly on Russian scientists and engineers, to report secret violations. But, in addition, we also have spies operating in Russia. They are called plain-clothes inspectors. They would sue you for slander if you called them spies. Spying has become a respected and lucrative profession.

"It might well be that the Russians have hidden a few bombs and rockets, but we are fairly sure the number cannot be much more than five or ten. Also, it would be very difficult for the Russians to dig them out and to use them for launching an attack.

A. "Still, if they did, they could demolish twenty to twenty-five of our cities and we could demolish only fifteen of theirs. Is that not right?

B. "Yes, that is true. But don't forget that they like their cities very much and they don't care much about ours, one way or another.

A. "If a crew blows up a city, does it commit suicide?

B. "It does. And that is a very good thing because, it gives Russia reasonable assurance that no American crew would blow up a Russian city, except in retaliation against the blowing up of an American city. This holds, of course, in the reverse, also.

"For the bomb to go off, sixteen out of a crew of thirty would have to press down their individual control keys. The American crews are not made up of professionals and the crews rotate very rapidly. Reputable American citizens, who have a college degree, are drawn by lot - much like citizens are drawn for jury duty - and each person serves fourteen days, as a member of an American crew, below one of the mined Russian cities.

A. "You mean in the last instance the control is, so to speak, a grass roots control?

B. "Precisely, and this is very important. In fact, the system was put to a severe test three years ago and it passed it with flying colors. That was at the time of the revolution in Iran. The uprising had been, clearly,

instigated by Russia and the new Iranian government promptly concluded a military alliance with the Soviet Union. The Government regarded this a case of aggression and declared that if America were to tolerate such an aggression, one neighbor of Russia after another would fall, in rapid succession. After an all-night session of the Security Council, the Government ordered Kiev to be blown up. There was some doubt as to the legality of this order, because the previous Administration had concluded an agreement with the Soviet Union and according to this agreement cities were not to be blown up by either party, except in retaliation for the blowing up of their own cities and even then only after two weeks' warning had been given to permit the evacuation of the city. This agreement had not been ratified as yet, however, at the time of the Iranian revolution. Anyway, when the Government ordered Kiev to be blown up, the crew refused to obey the order.

"One year later Iran found that Russia would not buy her oil and she applied for membership in the Common Market. In retrospect, at least, there is not much reason to regret that Russia and America did not blow up each other's cities - on account of Iran.

A. "This mining of each other's cities, does this provide us now with the fool proof second strike, which had been the dream of our arms control boys before I fell ill?

B. "Fool proof I would not say, but almost fool proof, yes. Still, we nearly got into trouble just a year ago, at the time of the Formosa crisis. Without any warning, the Russians suddenly began evacuating all of their mined cities. Our Government issued a twenty-four-hour ultimatum which was

countersigned by a majority of each American crew, on station duty below a mined Russian city, and the Government threatened to blow up all of the mined cities in Russia if the evacuations were not instantly stopped. For twenty-four hours, the fate of all such cities, in America as well as in Russia, hung in the balance. But within minutes, after the first alarming report reached Washington, the President got through to the Chairman in Moscow on the telephone and the two of them talked for hours on end. The Chairman said that the evacuations were merely an exercise. What the President said is not known, but as soon as the conversation had ended the Chairman cancelled the evacuation order. The telephone line directly connecting the White House with the Kremlin had been installed just a few months before.

A. "I remember there was lots of talk, before I fell ill, that there ought to be installed a direct line between the White House and the Kremlin, so that in the case of an emergency President Kennedy can get through to the Chairman, Khrushchev, without delay. It was rumored that, in private conversations with their intimates, Kennedy as well as Khrushchev had expressed themselves in favor of having such a telephone connection, but I do not recall that anything was done about it.

B. "No, nothing was done about it then and for many years thereafter either, because apparently no President and no Chairman wanted to take the initiative and to risk being rebuffed. If it hadn't been for a student prank, there would have been no telephone installed, and available, when the ^{Formosa} crisis came, a year ago. God only knows what would have happened.

A. "Did you say a student prank?

"Yes. The Harvard Chapter of the World Federation for Applied Common Sense was involved. On February 5th, 1975, a note from the White House reached the Kremlin, in which the President of the United States suggested the installation of a telephone, and on the same day a note was received in the White House from the Kremlin, in which the Chairman suggested the installation of a telephone. The notes were forgeries, but this was not immediately apparent and the President as well as the Chairman promptly replied, accepting the suggestion. Naturally, when the White House and the Kremlin received replies to notes which they had never sent, the forgery was discovered, but by that time both the President and the Chairman had accepted, they were both glad that they did, and they saw no reason to go back on their word. The three chief culprits, all of them juniors at Harvard College, were tried under the Logan Act of 1799 and they were sentenced to long prison terms, but the case was appealed to the Supreme Court and the Court ruled the Logan Act unconstitutional. This, incidentally, was the first time that the Government invoked the Logan Act.

A. "Who thought up these mined cities?"

B. "Szilard had proposed it in an article published in 1961, but the idea may not have been original with him. His proposal was presented in the form of fiction and it was not taken seriously.

A. "If he meant his proposal seriously, why didn't he publish it in serious form?"

B. "He may have tried and found that no magazine would print it in a serious form. Anyway, the idea of the mined cities came up again after the submarine menace became acute.

A. "Submarine menace? What do you mean?"

B. "In the end we would probably save time if I took fifteen minutes and filled you in on what happened while you were 'out'. We could do this now, if you are not too tired, or sometime in the afternoon.

A. "I am not tired, why not tell me now?"

B. "In 1962 when you were put to sleep America had still to rely mostly on intermediate range bombers, based on airfields located in the proximity of Russia, as well as long-range bombers based on airfields located in America. Because a sudden rocket attack on all of these airfields could have knocked out America's ability to strike a counter blow, America had to keep, in times of crisis, one-fifth of her bombers in the air, on a round-the-clock basis. Russia, on the other hand, had no foreign bases; she was not in need of any, since she had a rapidly growing stockpile of long-range rockets which could be launched from bases inside of Russia and which were capable of carrying hydrogen bombs, large enough to demolish a city.

"By 1965 America relied for her defense mainly on solid-fuel long-range rockets, like the Minuteman. These were located in clusters of twenty-five at widely scattered bases within American territory. The rockets were protected from attack by bombs, or as they used to say, the bases were hardened. In addition a number of such rockets were mounted on trucks and were constantly moved around along the highways of America.

These transportable rockets were developed as a result of the resumption of the bomb tests by Russia in 1961, which opened the way for America to engage in underground testing of bombs and to develop better triggers for

hydrogen bombs. The new, compact, hydrogen bombs were light enough to be carried by rockets, which were small enough to be carried around by trucks. Naturally, America had also a small but increasing number of submarines capable of firing intermediate range, solid-fuel rockets, the Polaris rockets.

"Development in Russia moved along strictly parallel lines.

"By 1965 America and Russia were capable of destroying each other to any desired degree. Because they both relied on dispersed hardened bases and mobile rockets, it would have been no longer possible for either country to destroy, by a "first stroke" the power of the other country to strike a devastating counter blow. Because there was no reason any longer to fear a first stroke, the atomic stalemate gained a stability which it did not until then have.

"At a time when America and Russia could have destroyed each other to any desired degree, the threat of massive retaliation would have been tantamount to a threat of murder and suicide. Such a threat might be believable if made by a nation in a conflict in which its very existence was at stake, but it would not have been believable if made by America in a conflict in which American interests were at stake, but not America's existence as a nation. In these circumstances America could no longer rely on long-range rockets and the large bombs for the defense of her national interests. Instead, America planned to send troops to the area involved and if need be to fight a war, with conventional weapons as long as possible. America was also prepared to use small atomic bombs against troops in combat within the contested area, but this she intended to do only if necessary to prevent a Russian victory.

"It was generally taken for granted that the large bombs and the long-range rockets would play no role in any of the foreseeable conflicts. They were kept as an insurance, only for the purpose of retaliating, if Russia should attack America with such bombs.

"In 1966 there was a revolution in Iraq, which caught America by surprise. No one had any doubt that this revolution was Communist inspired, and America responded promptly by landing troops in the Lebanon. This time America was determined to settle the issue of ^{the} control of the Middle East and thus to end, once and for all, the threat that Western Europe might be cut off from its Middle East oil supply. Egypt and Syria declared that they would regard an invasion of Iraq by American troops as an attack against themselves. Turkish troops were poised to move into Syria, and Russia was concentrating troops on the Turkish border, for the purpose of restraining Turkey.

At this point America proclaimed that she was prepared to send troops into Turkey, and to fight a war there with conventional weapons.

Russia decided, however, to adopt a strategy of another kind. She sent a note, in which she proclaimed that she would not resist by force of arms in the Middle East an American invasion of that area, but would, rather, seek to "deter" America by setting a high price for such an invasion. The price was to be set, not in terms of human life, but solely in terms of property.

The Russian note listed twelve American cities by name. The Russians said that if American troops crossed over into Iraq they would single out one of these twelve cities, give that city four weeks of warning, to permit its orderly evacuation, as well as to allow time for making arrangements for the feeding and housing of refugees, and after that, the city would be

demolished with one single long-range rocket.

The American reply hinted that for each city that Russia demolished in America, America would demolish two cities in Russia.

To this the Russians replied, in a second note, that if America were to demolish two cities in Russia, for each city that Russia demolished in America, and if Russia were to demolish two cities in America, for each city that America demolished in Russia, then the destruction of even one city would trigger a chain of events which would, step by step, lead to the destruction of all American as well as all Russian cities. The Russians said that since America could not possibly want this result, she should not make such a threat of "two for one" and expect it to be believed. Russia, on her part, would tolerate America's demolishing one Russian city, in return for Russia's having demolished one American city. But for each additional city that America might demolish, Russia would demolish one and just one additional city in America.

Russia made it clear that this did not mean that America would be free to demolish a large city in Russia in return for a small city demolished in America and that the size of the city would be measured by the number of inhabitants.

The second Russian note caused a turmoil in Washington. Some people urged that the Government adopt a rigid policy of demolishing two Russian cities for each city demolished in America, others urged that it accept the principle of "one for one", and still others urged that it do neither, but just keep the Russians guessing.

Within a few days, after the receipt of the first Russian note which listed the twelve cities, people began to register in Washington as lobbyists

for one or another of the twelve cities, and ten days later there was not a hotel room to be had in the whole city. It was the most powerful lobby that ever hit Washington. After an initial period of uncertainty, this lobby succeeded, with steadily increasing editorial support across the country, in forcing a re-examination of the whole Middle Eastern issue. Doubts were raised as to whether Western Europe was really in danger of losing its supply of Middle Eastern oil, since there was no other market for it. It was said that while the price of oil from the Middle East could be raised, it could not be raised very much, since it could be replaced by oil from the Sahara. As the result of a re-examination of the whole issue, America decided to withdraw her troops from Lebanon.

Prophecies that from there on Russia would be in a position to get her way on any issue, and to change the map at will, simply by threatening to demolish a limited number of American cities, proved to be incorrect. A number of nations in Southeast Asia went Communist, and so did several nations in Africa but, on the other hand, the Communist government in Iraq broke diplomatic relations with Russia, in protest against Russia's supplying oil at cut-rate prices to Western Europe.

The Iraq incident was followed by a period of quiet, and many people began to believe that the strategic stalemate had reached a stage where it was virtually stable. There were changes, of course, but they came about through genuine internal revolutions and no nation sent its troops across the frontier of another nation in order to increase the territory under its control.

"Around 1973, however, there appeared a new kind of instability, which rapidly developed into a serious threat to the world.

"As the Russian rockets increased in numbers and became capable of carrying larger bombs, the situation of the United Kingdom, France, Germany, Italy and Japan became precarious. Up to 1973, these nations had based their security on rockets which were constantly moved around within their territory. However, rockets are guided by delicate instruments, which are ruined if the rockets get badly shaken up. All these countries were small, and had Russia exploded about one-fourth of her rockets in a sudden attack, say, over France and Germany, the French and German rockets would have been so badly shaken up that neither of these two countries would have been capable of striking a counter blow. In these circumstances, all the atomic nations, with the exception of America, Russia and China, felt compelled to shift their defense from land-based rockets to rockets based on submarines.

"This solved the problem of surprise attack with which these nations were faced, but it created a new problem for the world. If a city were destroyed by a rocket launched from a submarine, the rocket could be traced back to the point at sea from which the rocket had been launched; but with the submarine submerged, it would not be possible to identify the nation responsible for the attack. The possibility of such an anonymous attack was particularly serious in view of the political frustration not only of Japan, but also of Germany.

"Fears were growing, both in America and in Russia, that one day a bomb might be launched from a German or a Japanese submarine and destroy, say,

an American city. Since the identity of the attacker would remain concealed, America might counterattack Russia, with the result that Russia would counter-attack America. To what extent such fears were justified I cannot say, but it is certain that if Russia and America had mutually destroyed each other this would have left both Germany and Japan in a much better position to pursue their political aspirations.

"Apprehensions reached such a level that wealthy Americans went to live in Arizona and New Mexico, where they built luxurious homes equipped with air-conditioned shelters, capable of storing a year's food supply, and with attics, complete with machine guns mounted in the windows. Many Americans transferred their funds to Switzerland, and this movement of funds reached such proportions that Swiss banks ceased to pay interest on deposits and levied a 3% annual "carrying charge".

"It was at this point that the idea of the mined cities was put forward, in a commencement address at Harvard, by the Chairman of the Board of the Chase Manhattan Bank.

"Incidentally, the whole sequence of events that I have just told you had been up to this point correctly predicted by Szilard in "The Voice of the Dolphins." This is pure coincidence, of course, for nobody can correctly foretell the events of the future; few people can even correctly tell the events of the past.

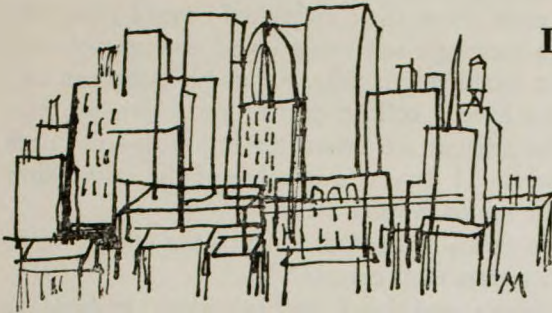
A. "I read "The Voice of the Dolphins" when I was ill in the hospital; I remember that it contained many rather crazy predictions, but what they were, I do not recall.

B. "I can lend you my copy if I can find it. My college age kids were reading it, and they may have lent my copy to their friends. Anyway, you might prefer to read "The Mined Cities" which has been just published in three volumes by the Encyclopedia Brittanica. It is an authoritative, if slightly boring, account of the events of the past twenty years, which led up to the mining of the cities. The hospital library has several copies, but you probably had your fill of the events of the past; now that you can no longer count on dying, you will have your hands full, planning for the future.

The End

The Mined Cities

LEO SZILARD



A: No, thank you. No more water, please. What year did you say it was?

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B: Yes, that is true. But don't forget that they like their cities very much and they don't care much about ours, one way or another.

Short of general and virtually complete disarmament, accompanied by adequate measures of inspection, both America and Russia may be expected to want to maintain an "invulnerable second strike capability," as an insurance against being attacked with bombs. "The Mined Cities" analyzes what this would involve. In spite of its fictional form, the article is technically correct. The form permits the author to be more enlightening by being more entertaining.

A: If a crew blows up a city, does it commit suicide?

B: It does. And that is a very good thing because, it gives Russia reasonable assurance that no American crew would blow up a Russian city, except in retaliation against the blowing up of an American city. This holds, of course, in the reverse, also.

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One year later Iran found that Russia would not buy her oil and she applied for membership in the Common Market. In retrospect, at least, there is not much reason to regret that Russia and America did not blow up each other's cities—on account of Iran.

A: If the crew commits suicide when it blows up a city, what assurance does the country have that any crew would ever blow up a Russian city?

B: Fairly good assurances, I should say. I ought to have told you before that the Americans serving a tour of duty in a fortress below a Russian city are all men with families from the mined city which is the American counterpart to the particular Russian city below which they serve. (These counterpart cities are always about equal to each other in size and the American crew is sworn to blow up the city if their own city has been blown up by the Russians.) The crew would com-

mit suicide when they blow up the city, but the people serving on the crew are not taking any greater risks than if they were to stay at home, because they would perish anyway when their own city is blown up. Do you think that they would violate their oath for the sake of mere survival if their own city is blown up, and along with the city their own families who are staying behind? And if they did violate their oath, where could they go? What could they do there?

A: Still if the President can no longer rely on the bomb to go off when he gives the order, then the bomb ceases to function as a deterrent. We can no longer threaten to drop the bomb, in case of Russian aggression; now we cannot threaten to blow up their cities—as long as they don't start blowing up our cities.

B: That is correct. When the cities were mined, America and Russia each pledged herself not to resort to the use of the bomb unless the bomb is used against her first. The bombs which we have retained do not function as a deterrent and we are retaining them merely as an insurance against the possibility that we might be attacked with bombs that the Soviet Union might have secretly retained. We have renounced the first strike, but we are holding on to the second strike.

A: This mining of each other's cities, does it provide us now with the foolproof second strike, which had been the dream of our arms control boys before I fell ill?

B: Foolproof I would not say, but almost foolproof, yes. Still, we nearly got into trouble just a year ago, at the time of the Formosa crisis. Without any warning, the Russians suddenly began evacuating all of their mined cities. Our government issued a 24-hour ultimatum which was countersigned by a majority of each crew on station duty below a mined Russian city and the government threatened to blow up all of the mined cities in Russia if the evacuations were not instantly stopped. For 24 hours, the fate of all such cities, in America as well as in Russia, hung in the balance. But within minutes after the first alarming report had reached Washington the President got through to the Chairman in Moscow on the telephone and the two of them talked for hours on end. The Chairman said that the evacuations were merely an exercise. What the President said is not known, but as soon as the conversation had ended the Chairman cancelled the evacuation order. The telephone line directly connecting the White House with the Kremlin had been installed just a few months before this incident.

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Kennedy and Khrushchev had expressed themselves in favor of having such a telephone connection, but I do not recall that anything was done about it.

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A: Did you say a student prank?

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House from the Kremlin, in which the Chairman suggested the installation of a telephone. The notes were forgeries, but this was not immediately apparent and the President as well as the Chairman promptly replied, accepting the suggestion. Naturally, when the White House and the Kremlin received replies to notes which they had never sent, the forgery was discovered, but by that time both the President and the Chairman had accepted; they were both glad that they did, and they saw no reason to go back on their word. The three chief culprits, all of them juniors at Harvard College, were tried under the Logan Act of 1799 and they were sentenced to long prison terms, but the case was appealed to the Supreme Court and the Court ruled the Logan Act unconstitutional. This, incidentally, was the first time that the government invoked the Logan Act.

A: Who thought up these mined cities?

B: Szilard had proposed it in an article published in the *BULLETIN OF THE ATOMIC SCIENTISTS* in 1961, but the idea may not have been original with him. His proposal was presented in the form of fiction and it was not taken seriously.

A: If he meant his proposal seriously, why didn't he publish it in serious form?

B: He may have tried and found that no magazine would print it in a serious form. Anyway, the idea of the mined cities came up again after the submarine menace became acute.

A: Submarine menace? What do you mean?

B: In the end we would probably save time if I took 15 minutes and filled you in on what happened while

you were 'out'. We could do this now, if you are not too tired, or sometime in the afternoon.

A: I am not tired, why not tell me now?

B: In 1962 when you were put to sleep America still had to rely mostly on intermediate-range bombers, based on airfields located in the proximity of Russia, as well as long-range bombers based on airfields located in America. Because a sudden rocket attack on all of these airfields could have knocked out America's ability to strike a counterblow, America had to keep, in times of crisis, one fifth of her bombers in the air, on a round-the-clock basis. Russia, on the other hand, had no foreign bases; she was not in need of any, since she had a rapidly growing stockpile of long-range rockets which could be launched from bases inside of Russia and which were capable of carrying hydrogen bombs large enough to demolish a city.

By 1965 America relied for her defense mainly on solid-fuel long-range rockets, like the Minuteman. These were located in clusters of 25 at widely scattered bases within American territory. The rockets were protected from attack by bombs, or as they used to say, the bases were hardened. In addition, a number of such rockets were mounted on trucks and were constantly moved around along the highways of America.

These transportable rockets were developed as a result of the resumption of the bomb tests by Russia in 1961, which opened the way for America to engage in the testing of bombs and to develop better triggers for hydrogen bombs. The new, compact, hydrogen bombs were light enough to be carried by rockets which were small enough to be carried around by trucks. Naturally, America had also a small but increasing number of submarines capable of firing intermediate range, solid-fuel rockets, the Polaris rockets.

Development in Russia moved along strictly parallel lines.

By 1965 America and Russia were capable of destroying each other to any desired degree. Because they both relied on dispersed hardened bases and mobile rockets, it would no longer have been possible for either country to destroy, by a "first strike" the power of the other country to strike a devastating counterblow. Because there was no reason any longer to fear a first strike, the atomic stalemate gained a stability which it did not until then have.

At a time when America and Russia could have destroyed each other to any desired degree, the threat of massive retaliation would have been tantamount to a threat of murder and suicide. Such a threat might be believable if made by a nation in a conflict in which its very existence was at stake, but it would not have been believable if made by America in a conflict in which American interests were at stake, but not America's existence as a nation. In these circumstances America could no longer rely on long-range rockets and

the large bombs for the defense of her national interests. Instead, America planned to send troops to the area involved and if need be to fight a war, with conventional weapons as long as possible. America was also prepared to use small atomic bombs against troops in combat within the contested area, but this she intended to do only if necessary to prevent a Russian victory.



It was generally taken for granted that the large bombs and the long-range rockets would play no role in any of the foreseeable conflicts. They were kept as an insurance, only for the purpose of retaliating, if Russia should attack America with such bombs.

In 1966 there was a revolution in Iraq, which caught America by surprise. No one had any doubt that this revolution was Communist-inspired, and America responded promptly by landing troops in Lebanon. This time America was determined to settle the issue of the control of the Middle East and thus to end, once and for all, the threat that Western Europe might be cut off from its Middle Eastern oil supply. Egypt and Syria declared that they would regard an invasion of Iraq by American troops as an attack against themselves. Russia massed troops on the Turkish border for the purpose of restraining Turkey.

At this point America proclaimed that she was prepared to send troops into Turkey, and to fight a war there with conventional weapons.

Russia decided, however, to adopt a strategy of another kind. She sent a note, in which she proclaimed that she would not resist by force of arms in the Middle East an American invasion of that area, but would, rather, seek to "deter" America by setting a high price on such an invasion. The price was to be set, not in terms of human life, but solely in terms of property.

The Russian note listed twelve American cities by name. The Russians said that if American troops crossed over into Iraq they would single out one of these twelve cities, give that city four weeks of warning to permit its orderly evacuation, as well as to allow time for making arrangements for the feeding and housing of refugees, and after that, the city would be demolished with one single long-range rocket.

The American reply hinted that for each city that Russia demolished in America, America would demolish two cities in Russia.

To this the Russians replied, in a second note, that if America were to demolish two cities in Russia, for each city that Russia demolished in America, and if Russia were to demolish two cities in America, for each city that America demolished in Russia, then the de-

struction of even one city would trigger a chain of events which would, step by step, lead to the destruction of all American as well as all Russian cities. The Russians said that since America could not possibly want this result, she should not make such a threat of "two for one" and expect it to be believed. Russia, on her part, would tolerate America's demolishing one Russian city, in return for Russia's having demolished one American city. But for each additional city that America might demolish, Russia would demolish one, and just one, additional city in America.

Russia made it clear that this did not mean that America would be free to demolish a large city in Russia in return for a small city demolished in America and that the size of the city would be measured by the number of inhabitants.

The second Russian note caused a turmoil in Washington. Some people urged that the government adopt a rigid policy of demolishing two Russian cities for each city demolished in America, others urged that it accept the principle of "one for one," and still others urged that it do neither, but just keep the Russians guessing.

Within a few days, after the receipt of the first Russian note which listed the twelve cities, people began to register in Washington as lobbyists for one or another of the twelve cities, and ten days later there was not a hotel room to be had in the whole city. It was the most powerful lobby that ever hit Washington. After an initial period of uncertainty, this lobby succeeded, with steadily increasing editorial support across the country, in forcing a re-examination of the whole Middle Eastern issue. Doubts were raised as to whether Western Europe was really in danger of losing its supply of Middle Eastern oil, since there was no other market for it. It was said that while the price of oil from the Middle East could be raised, it could not be raised very much, since it could be replaced by oil from the Sahara. As the result of a re-examination of the whole issue, America decided to withdraw her troops from Lebanon.

Prophecies that from there on Russia would be in a position to get her way on any issue, and to change the map at will, simply by threatening to demolish a limited number of American cities proved to be incorrect. A number of nations in Southeast Asia went Communist, and so did several nations in Africa but, on the other hand, the Communist government in Iraq broke diplomatic relations with Russia, in protest against Russia's supplying oil at cut-rate prices to Western Europe.

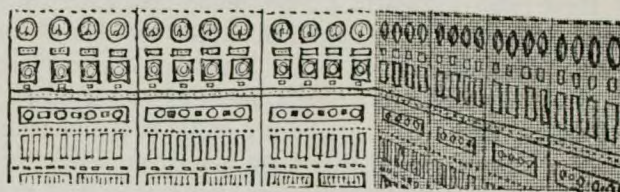
The Iraq incident was followed by a period of quiet, and many people began to believe that the strategic stalemate had reached a stage where it was virtually stable. There were changes, of course, but they came about through genuine internal revolutions and no na-

tion sent its troops across the frontier of another nation in order to increase the territory under its control.

Around 1973, however, there appeared a new kind of instability, which rapidly developed into a serious threat to the world.

As the Russian rockets increased in numbers and became capable of carrying larger bombs, the situation of the United Kingdom, France, Germany, Italy, and Japan became precarious. Up to 1973, these nations had based their security on rockets which were constantly moved around within their territory. However, rockets are guided by delicate instruments, which are ruined if the rockets get badly shaken up. All these countries were small, and had Russia exploded about one fourth of her rockets in a sudden attack, say, over France and Germany, the French and German rockets would have been so badly shaken up that neither of these two countries would have been capable of striking a counterblow. In these circumstances, all the atomic nations, with the exception of America, Russia, and China, felt compelled to shift their defense from land-based rockets to rockets based on submarines.

This solved the problem of surprise attack with which these nations were faced, but it created a new problem for the world. If a city were destroyed by a rocket launched from a submarine, the rocket could be traced back to the point at sea from which the rocket had been launched; but with the submarine submerged, it would not be possible to identify the nation responsible for the attack. The possibility of such an anonymous attack was particularly serious in view of the political frustration not only of Japan, but also of Germany.



Fears were growing, both in America and in Russia, that one day a bomb might be launched from a German or a Japanese submarine and destroy, say, an American city. Since the identity of the attacker would remain concealed, America might counterattack Russia, with the result that Russia would counterattack America. To what extent such fears were justified I cannot say, but it is certain that if Russia and America had mutually destroyed each other this would have left both Germany and Japan in a much better position to pursue their political aspirations.

Apprehensions reached such a level that wealthy Americans went to live in Arizona and New Mexico, where they built luxurious homes equipped with air-conditioned shelters, capable of storing a year's food supply, and with attics complete with machine guns

mounted in the windows. Many Americans transferred their funds to Switzerland, and this movement of funds reached such proportions that Swiss banks ceased to pay interest on deposits and levied a three per cent annual "carrying charge."

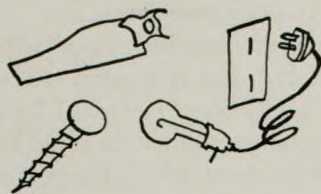
It was at this point that the idea of the mined cities was put forward, in a commencement address at Harvard, by the Chairman of the Board of the Chase Manhattan Bank.

Incidentally, the whole sequence of events that I have just told you had been up to this point correctly predicted by Szilard in *The Voice of the Dolphins*. This is pure coincidence, of course, for nobody can correctly foretell the events of the future; few people can even correctly tell the events of the past.

A: I read *The Voice of the Dolphins* when I was ill in the hospital; I remember that it contained many rather crazy predictions, but what they were, I do not recall.

B: I can lend you my copy if I can find it. My college age kids were reading it, and they may have lent my copy to their friends. Anyway, you might prefer to read *The Mined Cities* which has been just published in three volumes by the Encyclopedia Britannica. It is an authoritative, if slightly boring, account of the events of the past 20 years which led up to the mining of the cities. The hospital library has several copies, but you have probably had your fill of the events of the past; now that you can no longer count on dying, you will have your hands full planning for the future.

Bootstrap Statemanship



PAUL G. HOFFMAN

THE LOW-INCOME countries are rich in human and physical resources, but the rate of realizing their potentialities remains deplorably slow. This situation raises a question even in the minds of those who recognize development assistance as a moral, economic, and political necessity: Have we learned what kind of economic statesmanship is most effective in speeding the development of poor lands?

I believe we have. It has been a costly trial and error lesson. We understood that large investments were required, but did not face the fact that money will not venture into the unknown. We slighted the fact that money voluntarily comes forth when opportunities for its useful and profitable investment are demonstrated, that millions of dollars for surveys can get billions of dollars to work.

Another error was preoccupation with physical resources, ignoring the critical importance of developing local teachers and facilities to train and educate local people to use these resources.

Do-It-Yourself Development

One result of these costly lessons is a wider recognition of the necessity for multilateral aid. Demonstrating resource potentials to attract investment and training local people to utilize their resources is a task to be done by the low-income countries themselves as much

as possible. Nations and people prosper by doing, rather than by having things done for them—and they know it. Vocational training is needed as well as instruction on the job. For common-sense reasons, the low-income countries increasingly prefer multilateral assistance both in surveys of resources and in necessary training.

We have learned that only an unprecedented collaborative effort can solve the economic problem of low-income countries with what might be called "bootstrap statesmanship." Toward that end, for compelling practical, psychological and political reasons, a greater proportion of international public assistance—pre-investment and investment—should be channeled through the United Nations.

Yet I do not believe that all or even a major part of international aid should be administered by the United Nations. On many occasions a country might prefer to use bilateral channels or regional agencies. There may be technical as well as political justification for such decisions.

The approach to aid should be pragmatic rather than dogmatic. Two key questions should be taken into account: How to make every dollar of international assistance produce the greatest returns in economic development, and how to channel aid to intensify the experience of multilateral cooperation and strengthen the institutions of world order. The resources for eco-

A. "If the crew commits suicide when it blows up a city, what assurances does the country have that any crew would ever blow up a Russian city?"

B. "Fairly good assurances, I should say. I ought to have told you before that the Americans serving a tour of duty in a fortress below a Russian city are all men with families from the mined city, which is the American counterpart to the particular Russian city below which they serve. (These counterpart cities are always about equal to each other in size and the American crew is sworn to blow up the city if their own city has been blown up by the Russians.) The crew would commit suicide when they blow up the city, but the people serving on the crew are not taking any greater risks than if they were to stay at home, because they would perish anyway when their own city is blown up. Do you think that they would violate their oath for the sake of mere survival if their own city is being blown up, and along with the city their own families who are staying behind? And if they did violate their oath, where could they go? What could they do there?"

A. "Still if the President can no longer rely on the bomb to go off when he gives the order, then the bomb ceases to function as a deterrent. We can no longer threaten to drop the bomb, in case of a Russian aggression; now, we cannot threaten to blow up their cities - as long as they don't start blowing up our cities."

B. "That is correct. When the cities were mined, America and Russia each pledged herself not to resort to the use of the bomb unless the bomb is used against her first. The bombs which we have retained do not function as a deterrent and we are retaining them merely as an insurance against the possibility that we might be attacked with bombs that might have been illegitimately and secretly retained by the Soviet Union. We have renounced the first strike, but we are holding onto the second strike."