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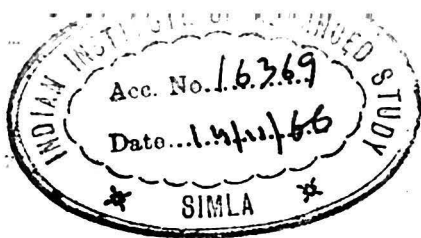
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SHARING THE WATERS OF JORDAN

By IAN COLVIN

(Address given to the Royal Central Asian Society on May 13, 1964.)

I HAVE just completed a tour of Jordan and Israel, getting to know what is involved in the harnessing of the Jordan waters. It is not very easy to get information on a subject when, as in this case, there is a kind of political iron curtain running down the centre of the area concerned and I was very fortunate, I think, in getting complete co-operation from both the Israel and Jordan Governments.

Let us start with the ordinary geography of the place. (*The lecturer indicated on a map the Sea of Galilee, the Dead Sea and the disputed waters.*) The first attempts to get Israel and Jordan together—and indeed also Syria, which has what one might call a toe-hold on the Lake—on the distribution of the waters of the Jordan valley were undertaken by Ambassador Johnson on behalf of the American Government in 1955. My own impression was that there was no animosity between the Israeli water experts and the Jordan experts. They simply took a professional attitude, telling me: “I think that is possible”, or, “I think that project is going a bit too far.” It was on getting into the political arena that one discovered prejudices and passions. In October 1955 the Arab League in plenary session rejected the Johnson Plan. All that remained was a draft on paper which was prepared to award 40 per cent. of the usable flow of the Jordan valley to Israel and the remaining 60 per cent. to the riparian Arab states, Jordan and Syria and the Lebanon.

There was at one time a project which would have given Israel its one hydro-electric plant, and that was to take the water from the Upper Jordan and bring it down by gravity, generating power in doing so. Thus Israel could have generated electricity as well as diverting water to an area where it was needed. But a Soviet-Russian veto put an end to that project, which was I think a very real disappointment for Israel because their entire electricity supply at this moment is oil-generated. In the Jordan's lower valley there are no places in which there is enough fall to generate electricity.

So in the years after 1955 Israel set about thinking how she was to use the 40 per cent. of the waters she considered to be her entitlement. Out of this came the very grandiose project which I think is in its way as spectacular as the High Dam in Egypt, namely to pump water from the edge of the Sea of Galilee 600 feet up to a reservoir and from there to let it flow down through pipes and canals towards Tel Aviv onwards right down the coast to irrigate a settlement system in the neighbourhood of Beersheba in the Negev Desert. This year there has been a very heavy rainfall and the Negev desert was green in April. That was an absolute phenomenon and one which will not last. In the context of this lecture I should point out

that after about seven years of drought it is auspicious that in this inaugural year of the Israeli water project the rainfall has been so great. The Dead Sea is up 1 metre and the Sea of Galilee is 2 metres higher than its ordinary seasonal level. In the middle of April it was at 209 metres below sea level.

This enormous rainfall this year—and the same was reported from Jordan—is I think a very good start. If the scheme is to succeed there must be a little kindness from nature. Another cycle of seven dry-years would I believe make the National Water Plan the cause of serious trouble and friction. Whereas with a tolerable rainfall in the next few years I think the worst Arab fears will not be realized. The scheme might get under way without doing havoc to the agriculture of the Jordan valley.

One of the most impressive sights I have seen is the underground pumping station on the shore of Lake Galilee at Esher Kinrod. Inside, it is about the size of the nave of Romsey Abbey. It is deep enough in the rock to be absolutely safe from artillery fire or bombing and is sufficiently well guarded, as far as I could see, to be quite invulnerable to any kind of commando attack. There are three most impressive Swiss pumping units that send the water up channels to a height of 600 feet. From there onwards the water flows in concrete pipes of 2 metres diameter that were made in Israel. These protect it in vulnerable areas. The Syrian frontier is only eight miles distant from Esher Kinrod across the lake. The maximum rate of flow is 2 cubic metres a second.

Much has been said in the Arab press about this being an attempt to bring another million settlers into the Negev desert and create a new population pressure in the Middle East. I was authoritatively told, during my interviews in Jerusalem, that about 15,000 farm holdings would be more or less the limit. Perhaps a total population of 65,000-70,000 could be maintained on the amount of water available. This is obviously a useful expansion of Israel's agriculture but does not constitute a threat to the Arabs. In fact, the area which would be irrigated would not be very large. It would provide a useful addition to Israel's agriculture but not a basis for a new drive for immigration.

The Jordan case, I think, is more reasonably established on the question of salinity. If you are taking the amount of water that flows through a 2-metre diameter pipe (something like a large brook flowing the whole time) out of a lake the size of the Sea of Galilee (about twice the size of Loch Lomond) you would certainly want fresh water. The siting of the intake basin is such that only fresh water goes out. There are hot springs and saline gushes near Tiberias under the surface of the lake. The Israeli engineers are trying to cap these springs. Concrete channels can already be seen laid along the shore of the lake to lead off the salt water and so reduce the salinity of the lake. They will deposit the salt water further down the lower Jordan valley. Now, here I do think there is a question mark. If, as well as taking the water which technically I think they are entitled to, they take also the salt from the lake and dump it into the river Jordan again, the double effect is to decrease the water and increase its salinity. I do not know what alternative there is. If the salt water can be tapped off it will be better for the lake; on the other hand, the salt water should be disposed of only in agreement with Jordan.

The Jordan Government has a project of its own, which is not of the same character or magnitude as the Israeli National Water Project. But it is extremely useful to the country's agriculture. I made a tour of it after going through the Mandelbaum Gate from Israel into Jordan and was shown what they call the "East Ghor Project". The Jordanians have tapped the river Yarmuk, which enters the Jordan below the Sea of Galilee. By means of a tunnel the Jordan Government has been able to lead off a quantity of water into an open canal and carry it along the east bank of the Jordan along the higher contours of the valley. This ends the complicated system of pumping water up from a myriad of antiquated pumps which need constant servicing. It is the ideal answer in that water can simply be let off through sluices down and back towards the river depression. My impression was that the waterworks were very well planned but that the Jordan agricultural authorities lag behind the Israeli authorities in their use of the water. They seemed to have no real plan as to how to profit agriculturally from the East Ghor Project. I was told in Jordan that everybody went for cash crops. Arabs are individualists. One year everyone would produce tomatoes and wonder why they made no money. What appears to be needed is Government or co-operative planning of crops on a large scale, to utilize the waters in a balanced production programme.

Those are the two projects that exist at the moment. I found in April the Israel national water plan not yet sufficiently advanced to go into regular usage. I was allowed to see all over it. Perhaps by the late summer of 1964 the machinery will be finally installed.

I would like to talk a little about the Lebanon in this context. The waters of the Dan, which is one of the three head waters of Jordan, are entirely inside Israel. But the Banias and Hasbani waters flow out of the Lebanon. These could be deflected by costly feats of engineering either west into the Lebanon or inside the frontier of Syria southernwards into the Yarmuk river and so down to Jordan. That is the dangerous project which might lead to a confrontation in the Middle East. If the waters of the Hasbani and the Banias are diverted Israel could not run her national water project for longer than two years without lowering the waters of Galilee to a dangerous level. Therefore in the future of the Middle East a great deal depends not only on the weather, but on counsels in the Arab League. If extremists get the upper hand and deflect the waters of the Banias and Hasbani there can be serious trouble.

I went to the Lebanon on my way home. In Beirut I asked about diverting these waters. The ordinary Lebanese thinks it would be a fine thing to water the south of the Lebanon. My own impression, and I think that of some of the more serious Lebanese too, is that the water would go largely to waste. An enormous quantity already runs due west out of the Lebanon into the sea. It would be very costly and would really bring very little benefit to the Lebanese if they tunnelled through the hills and managed to add it to the waters of their own rivers.

A word about the Lake of Galilee as a reservoir. The original idea in the Israeli water project was that the top reservoir—Beit Netofa—into which water was to be pumped would be large enough to form a fairly

considerable storage. But faults and porousness in the rock bed made this unfeasible. The head reservoir is concrete lined and quite small. I worked out that the Beit Netofa reservoir itself contains 0.5 per cent. of the annual usable flow of water through the Lake of Galilee, and 0.1 per cent. of the total volume of water in the Lake. This is one unhappy weakness of an otherwise very valiant scheme. You cannot, in my view, protect yourself very much from the unexpected if your head reservoir only contains 0.5 per cent. of the usable waters of the watershed with which you are dealing. The alternative, you may say, is "to make the Sea of Galilee your reservoir. Why do you have to pump?" The answer is, first, you have to pump up in order to get a downward flow. Secondly, the Sea of Galilee cannot simply be dammed and have its water level raised as if it were another Lake Kariba. Here the shores of the lake are surrounded by Kibbutz (communal farms) where people are already engaged in intensive agricultural production. Moreover, there are many holy places around the Lake of Galilee which would be submerged if the water level were raised. To make it a storage area would, I think, probably destroy more agriculture than it would create in the Negev. So there is no ideal solution for using the Jordan waters. At the southern end there is a barrage which is useful only for holding up the summer flow. It cannot hold back the winter flow of Jordan. Therefore it does seem a sensible aspect of the Israeli project that while the lake is high and running waste to the Dead Sea during the winter, they should be able to pump as much as they can and get it down into the coastal areas where it is needed and to the Negev. The practice will be to lower the level towards the end of the summer, and by lowering it one can provide as it were a natural reservoir. But this of course is borrowing water from the next year. That is why a great deal does depend on the amount of rain and when it falls in the next few years in the Middle East.

The Israeli engineers of the Water Board Authority told me that they hope over half a century to work the waters on the basis of a $7\frac{1}{2}$ -metre fluctuation in the level of the lake. That in practice is rather drastic. If you stand on the shores of the holy lake and try to imagine the water rising and falling $7\text{--}7\frac{1}{2}$ metres you can see it would create very large problems for the population living round the lake. But I am assured by the head of the Israeli Water Board that in the near future it is hoped to have a fluctuation of water of only about 3 metres, which should be acceptable to Galileans and, I hope, Jordanians of all nationalities as well.

As to the political aspects, earlier this year there was a meeting in Cairo of the Arab League. A technical Committee was set up to study a plan to divert the waters of the Baniyas and the Hasbani. The Arab League says that it is pushing on with this scheme. If its Alexandria meeting in August takes it a stage further, I think very serious concern will be caused in the Middle East and among the Great Powers as to the final consequences.

My impression of the Israelis is that they are confident in their scheme. They are confident that they can put it through without causing undue hardship to the users of the Lower Jordan waters. They are also determined that they are not going to allow a scheme for diversion of the Jordan sources to ruin this very large part of their national economy. Certainly

the Arab water plan would do this. In my conversations with the Water Board at Tel Aviv and with the Government in Jerusalem I was most impressed with the care that is taken of water and with its planning. I believe I am right in saying that Israel has the highest proportion of exploited water of any country in the world. Some of their experts explained to me the extent to which water is used and re-used. For all their likeable qualities, I did not see their Arab neighbours putting anything like the same rational organization into the use of their limited water supplies as Israel is doing.

I might at this point say a word about a somewhat older water system—the water system of the Nabataeans, who from Petra outwards cultivated the desert and made the most extraordinary system of reservoirs and catchments. The monuments of Nabataean water conservation are still in existence around Petra. I was told by Mrs. Bennett of the British School of Archaeology in Jerusalem that this year, with its phenomenal rainfall, the systems in the hills built by the Nabataeans in the first and second centuries A.D. were filled to the brim. Israeli engineers have studied the Nabataean water catchment systems. The Israelis have built on exactly the same sites as the Nabataeans built their dykes and dams two thousand years ago. When they tried to go one better, and put up a larger dam a little lower down the valley, they found that for some reason (a fault in the rock) the water flowed away. They had to return to the ancient siting of the Nabataeans.

The waters that go to waste on the Jordan site can and will be dealt with on a long-term plan. Not only by the East Ghor Project, or by the new West Ghor Project, but also by building a regular system of catchments to conserve the sudden winter cloudbursts in the wadis and store them. The most vexatious side of the Jordan problem is that in ordinary years the Jordan does run very low and very salt in the summer. Sometimes it sinks to a mere muddy trickle. At the end of this summer, for instance, the Arabs are going to go down to their river and say, "This is the result of the Israeli pumping." They will say that even if they don't know for certain whether the Israelis have started to pump or not. This is a political factor and a psychological factor. The Jordan water does run very low and very dry in the late summer. We must hope for a reasonable rainfall next autumn and that the much-trumpeted crises which President Nasser has made so much his particular concern will not come to pass.

During my trip I have spoken to Jordanians, Syrians and Lebanese and have found a varied response regarding Cairo's wish to stop Israel using the waters of Lake Galilee. The Jordanians are less heated about it than the Syrians because they are closer to Israel. Both are less heated than the United Arab Republic. When talking to them I asked: "How can you be so hot about the misuse of Arab waters when you know that some Arab aircraft have been bombing the Arab wells of the Yemen?" They did not produce any very convincing answer to that, and I don't think there is one.

My conclusion is that if put under a Central Authority for Water, both sides would find agreed uses without friction. The Israelis would welcome Arab observers on the site. The real problem, to my mind, is that the waters of Jordan offer an ideal opportunity for trouble-makers, and there

is no lack of those in the Middle East. I don't think anybody will be able to say that this crisis has not been foreseen. The British Foreign Service is and should be extremely concerned. Mr. Khrushchev has not made things easier by his recent statements. But if a crisis occurs, there are well-informed people ready to do all they can to prevent the use of Jordan waters becoming a cause for confrontation or war.

SUMMARY OF DISCUSSION

The lecturer was asked if the sharing of Jordan's water could not be settled by arbitration. He replied that it could be if the Arabs would accept this solution, but they would not go back on the stand they had taken in October 1955, namely that they were not going to have any kind of arbitrated settlement. He felt that the U.A.R. was leading this attitude.

A member asked if it had ever been considered that a channel might be cut from the Mediterranean to the Dead Sea, which would provide some electricity and at the same time generate enough to activate machinery for the turning of sea-water into fresh water. The lecturer replied that Israel was studying several desalination projects at the present time but none was so far advanced that a vast project of desalination could be undertaken.

Another member asked how the quantity of water taken off for the scheme compared with the amount of water coming in to the Lake of Galilee. The lecturer said he believed that water taken off amounted to 2 cubic metres per second, which was considerably less than the amount that flowed in during the winter period. In the summer, however, the level of the lake would be reduced.

A member then asked if there was any way of checking that the Israelis did not take more water than allocated. The lecturer answered that he had discussed this point with both the Israelis and the Jordanians. The Israeli attitude had been that they would rather not have the United Nations; it seemed they would prefer to have a team of Jordanians watching the use of the water and reporting back to the Jordanian authorities. The Arabs, however, have turned down this idea as an attempt to get them into "collaboration". The sensible thing, he himself thought, would be to get some kind of mutual control. The Israelis seemed to feel the U.N. was somewhat less than neutral and favoured the Arab case. The Israelis very much wanted to be in contact with the Arabs. They would have liked to meet them at least on an unpolitical project like the use of water.

A member commented that the National Water Scheme was a very costly one, if all it would achieve would be to make it possible for another 15,000 farm holdings to exist in the Negev. The lecturer pointed out that the scheme would also be used to replenish wells in the coastal citrus belt.

Referring to the lecturer's remarks about the Israeli attitude towards the U.N., the Israeli Ambassador said Israelis felt that, with their assurance of Soviet sympathy and aid, the Arabs had a built-in veto to any scheme. Israel would be prepared to consider the appointment of independent experts, who would impartially supervise the Water Scheme. So far the Jordanians had shown no readiness to agree. Israel felt that the stalemate could only be broken by a big initiative on the part of the Great Powers.



