

call Suez the Heroopolite Gulf, meaning that the sea at that time, although very shallow, reached to Heroopolis, or Pithom, the modern Tell el-Maskhutah. The savants Napoleon sent to survey Egypt came to a similar conclusion from geological evidence solely, from the quantities of recent shell-deposits of existing Red Sea species which showed that the sea had not long receded from as far up as Sabâ Biar. To this may be added as old Egyptian record that upon a sarcophagus found near Kantara, its owner's office under the administration is stated to be that of "preposé aux portes de la Mer." Without straining the meaning, it would seem he was a sort of inspector of the Mediterranean-Suez Isthmus port, and of the Red Sea one, and resided at Kantara, as being about midway between the two. If during his time there was a canal uniting the two seas (as we are told did exist for centuries) he may have had the guardianship of its north and south entries.

THE WATER SUPPLY OF DAMASCUS.¹

By E. W. G. MASTERMAN.

DAMASCUS lives on and lives from its vast irrigated plain known as the Ghûtah, and this is, and has always been, supplied by the two rivers known in Old Testament times (2 Kings v, 12) as the Amana (or Abana) and Pharpar, and to-day as the Barada and Awaj. Of these the most important and, so far as the actual city is concerned, the exclusive source of supply is the first named, the Barada—the Amana of Naaman, and the Chrysorrhœas of the Greeks. This river has its highest source about twenty-three miles from the city at 'Ain Barada, a spring rising in a pool three hundred yards long, situated at the southern end of a small plain in the Anti-Lebanon, nine miles north of Hermon. The stream flows through rush-grown muddy banks until it reaches the extreme southeast corner of the plain, where it plunges into the great winding rift leading in steep descent to the eastern desert. Down this, together with

¹ Portions of this article appeared in the *Expository Times* and in the *Biblical World* some years ago.

the modern railway line, the Barada descends by a long succession of cascades and torrents, a thousand feet in twenty-three miles. Some couple of miles down, the valley narrows greatly, and the stream is spanned by a bridge, near which are the extensive remains of the once important city of Abila, the capital of the tetrarchy of Abilene (Luke iii, 1). The ancient name is preserved in the name *Kabr Habil* given to a Moslem wely—the supposed tomb of Abel—near by. At this place three aqueducts once conducted water to the now ruined city, and one of those on the right bank is still in use. There are also the remains of a great rock-cut road, with an inscription containing the name of *Marcus Aurelius*, as well as an extensive cemetery of rock-cut tombs. To-day the village of *Sûk Wady Barada* is near but not quite on the old site. All down the wady the fresh water brings luxuriant fertility, and from the dry desert cliffs above, its course may be seen as a bright winding line of verdure. Some third of the way down the gorge the stream is almost trebled in volume by the addition of the ice-cold waters of one of the finest springs in Syria. This fountain, known as *'Ain Fijeh*, gushes out below a lofty cliff, and pours its waters in a great foaming mass into the main stream. It is evident that this was once a very sacred spot, and over the actual source are the ruined remains of a temple to *Pan*. Near by, on the left bank of the Barada, are still to be traced the remains of an aqueduct which led off some of the spring waters for a mile and a half to a great rock-cut channel used to-day as a passage of communication between the villages of *Bessima* and *Ashrufeyeh*, a little below which latter place this aqueduct disappears. Its original destination is obscure; some earlier observers suggested *Palmyra*, but that is exceedingly improbable. Some years ago a now blocked up channel was found to branch off into the heart of the hills to the north, and it is possible that the water was led out beyond this hill to irrigate an area to the west of *Damascus*, now a waterless wilderness. This canal, wherever it went, was of course at a very much higher level than any of those now used for watering the *Ghûtah*.

As the Barada approaches *Damascus* it gives off a series of canals—on the right bank the *Daiwany*, the *Mezzawy*, the *Kanawat*, and the *Banias*; and on the left bank the great *Yazid* and *Thaura*. These canals lie one above the other on their respective sides of the valley, until at its mouth at a place called *er-Rubweh* they spread out fan-wise on the plain.

Commencing with the canals on the right bank of the river, we find high up on the cliffs :—¹

(1) The *Nahr Daiwany*, دايواني.—This rises above the village of *Dummar*, and supplies a large mill near there. It contains a comparatively small quantity of water, through want of repair and consequent leakage. It passes through deep tunnels in the solid rock in many places, and was made to hold much more water than it does at present. As it turns out towards the plain, in the direction of the village of *Darayya*, which it was apparently made to supply, it contains little water, and is much overgrown with reeds.

Some ten feet or more lower down is the :—

(2) *Nahr Mezzaweh*, مززوه.—This at present contains a somewhat larger volume of water than the *Daiwany*; in places it passes through rock tunnels, but it is chiefly an open channel, at present a good deal overgrown with reeds, etc. It goes to the village of *Mizzeh* and the gardens beyond.

(3) Below this again is the *Nahr Kanawat*, قننوات—the River of Canals, literally. This stream leaves the *Barada* a good deal further down than the two before mentioned. For any who go to Damascus, I may mention that I have noted that it arises “close to the railway signal-box where the road crosses the railway.” It contains also much more water than the channels above. It passes east of the new barracks, runs parallel with the new railway along a covered-in channel, and passes into the city by a fine old Roman aqueduct, now half hidden by the high level of the road beside it, and thence supplies a large section of the city with water.

(4) The *Banias*, بانياسى, is also a large and important canal: it arises near the mouth of the wady, and passing east of the *Merj*, at several spots traversing rock tunnels, it enters the city about half-way between the *Kanawat* and the *Barada*, and supplies another large section of the city.

As these canals, at any rate the ones of importance, are from time to time emptied by diverting the waters in order that they may be cleaned out, the inhabitants know well enough, to their cost very often, from which canal their houses are supplied.

(5) The main stream—the *Barada*, بردى,—would be much smaller than it is but for the continual leakage into it from its

¹ This description was made from personal observation some years ago.

canals on each side. It passes from the *Rubweh* through some gardens, and emerges at the *Merj*—a large open meadow—where it runs beside the high road (the French diligence road) until it reaches the Serai Square. Here it plunges beneath a bridge, *not* (as Dr. G. A. Smith has it) to pass “in lesser conduits and pipes to every house and court in the city,” but to give off the canal ‘*Akrabāny* (عقربانى) which runs “between the walls”—that is, between the sites of the two lines of walls which protected this northern side of the city. It emerges a little farther on, after passing under the Serai Square, and runs along the moat of the north wall of the city until it reaches Bâb Tuma. Here it leaves the city to wind among the gardens, and finally, with much of the water of other channels also, it loses itself in the great marshy lakes to the east of the city.

The two remaining canals, those on the left bank, are both large and of elaborate construction. They are, in many places, built up of masonry to a great height against the steep cliffs.

(6) The *Thaura*, *طورا*, or more correctly, *ظورا*, the lower of the two, arises not far up the valley. At *Rubweh* it makes a remarkable dive through a tunnel in an obstructing ridge of cliff. On reaching the open it works north-westward, making a great sweep round the western flank of the city. It passes chiefly through gardens, but supplies the western suburbs outside the ancient city walls. It moves on as a shallow stream with muddy banks, overhung with trees, to water the land beyond the city, and, like the *Barada*, terminates in the lakes.

(7) The *Yazid*, *يزيد*.—This, the largest and highest of the canals, leaves the *Barada* near *Hameh*. On reaching the *Rubweh* it makes a wider sweep northward than the *Thaura*, almost, one might say, skirting the foot of the northern hills. It flows through and supplies the suburb of *Salyhezeh*, and passes to the villages of *Harista*, *Dûma*, etc.

The Arabic historians, Idrasi, A.D. 1154, and Dimashki, A.D. 1300, give almost identical names to these channels. The *Yazid*, *Thaurah* and *Barada* are identical. The *Banias* is called the *Banas* by Idrasi, and the *Balnias* by Dimashki. *Banas* is probably the ancient name, which has become corrupted to *Banias* through some confusion with *Banias*, the site of *Caesarea Philippi* and source of the *Jordan*. The *Mezzaweh* is called by both the *Kanat et-Mizzeh*,

after the village it supplies, and the Dairany is the Adayah of Idrasi and the Darayyah of Dimashki—all practically the same. The only doubtful one is the *Kanawat*, which, though so called by Dimashki, must correspond to either the Nahr *Sakt* or the Nahr *Yashkâr* of Idrasi; the 'Akabani may be the other.

It is evident that these canals are of extreme antiquity, especially those on the right bank, as, without them, the site of the city of Damascus would be a waterless desert, intersected with one green-fringed river—the Barada.

All these streams divide and subdivide and join again, forming a complicated network all over the city and in the fields around. Much of the water soon sinks into the ground, but, reaching near the surface a semi-impervious layer of conglomerate rock, it does not go far, and much is again tapped in more distant parts of the plain by chains of wells united by underground passages, from the mouth of which passages the water once more pours forth into new canals.¹ But for this system the eastern parts would never be watered at all. In the summer of 1901—a very dry season—all flows in the main stream bed ceased a few miles from the city, but a small stream collected farther on from the artificial fountains in the plain below. What water remains collects into a stream flowing east, which, after dividing into two or three divisions, empties itself into a number of marshes on the border of the desert. The condition of these marshes is very variable from time to time, according to the rainfall, but at best there is not much open water.² In the summer of 1901 the water was so low that huge quantities of fish were scraped out of the pools with shovels and sold for many weeks ridiculously cheap in Damascus. The "lakes" swarm with fish and waterfowl. In the early spring great quantities of water are pouring into this area, but rapid evaporation soon dries up the surplus. There are a number of villages close to the marshes, the most noted of which is Harrân el-'Awamîd—"Harrân of the Columns"—so called from three great basaltic columns forty feet high, and eleven feet six inches in circumference, which stand among the houses, evidently the remains of an important building belonging to an earlier civilization.

¹ Such a system is known in Persia as a *kariz*.

² Interesting accounts of these "lakes" and those receiving the waters of the Awaj, is to be found in *The Rob Roy on the Jordan*, and Porter's *Five Years in Damascus*.

The second Damascus river is the Awaj, *i.e.*, the "Crooked," as it is called where it crosses the southern extremity of the Ghútah. How appropriate is that name is shown by its extremely winding course, as drawn on the map. This river, to my mind without doubt the "Pharpar" of the Old Testament, rises by two heads from Mount Hermon. The highest and most northerly source is almost in the heart of Hermon, near the village of 'Arny. Here, at the foot of an almost sheer descent of six thousand feet, a number of springs give birth to a stream which finds a narrow opening in the great amphitheatre of hills and plunges down in an ever deeper bed toward the plain. Between the villages of Kefr Hawar and Beitima this River 'Arny lies in a very deep channel, and here the high road crosses it near the remains of an ancient bridge. The second source is at the eastern foot of Hermon, near a village called Beit Jinn to the south of Kefr Hawar; this stream unites with the 'Arny at a village called S'as'a to form the Sabirany, which a few miles farther on receives the name Awaj. A canal is given off to the north nearly half-way between S'as'a and Kisweh—where the railway crosses the river—which goes to water the Ghutáh. There are traces of other aqueducts, showing that in olden days much of the southern Ghutáh, now sparsely cultivated, was once watered from this source. The district now chiefly supplied by the Awaj is known as Wady el-Ajam, a valley topographically belonging to the Damascus country. The Awaj empties its surplus waters into the lake Hijaneh, which itself is supplied with two overflow canals leading to the marshy Bala. Like the northern lakes, the Hijaneh is subject to great changes, but when "Rob Roy" was there he found a large volume of water, though largely overgrown with weeds. The river Awaj is not nearly so much used for irrigation as its sister-stream; the old aqueducts have been allowed to fall into ruin, but it is by no means an insignificant stream in such a land as Syria, and undoubtedly has done much, as even to-day it does something, to contribute to the greatness and wealth of Damascus.

Although I consider that the identification of this river with the Pharpar is indisputable, I cannot say that I believe in the name *Nahr Barbar* which figures in our maps. There is a Jebel Barbar near one of the tributaries of the Awaj, but there is no true native tradition of a *River Barbar*.

Some years ago there was considerable controversy regarding

the question of the modern equivalents of the Abana and Pharpar, and I went into the question rather fully. To-day I need only briefly give the positive reasons for identifying the Amana with the Barada, and the Pharpar with the Awaj.

In Damascus as a district there are but two rivers; in ancient times undoubtedly both these were of essential importance to the city's prosperity, as the whole district was irrigated by their waters; both of these rivers arise from the roots of Hermon, and both end in similar marshy lakes to the east of the city, and were therefore fairly comparable with the only river rising from Hermon, the Jordan, which also, it may be noticed, ends in a lake; in the rivalry between the two countries, Palestine and Syria, the great rivers of the two countries must have been prominent objects of comparison; in many respects the "rivers of Damascus" must have, to a Syrian, appeared far finer than the comparatively useless though larger and longer Jordan.

With respect to the two rivers themselves, the larger, more important, and the one that must under all circumstances have been mentioned first, must have been the present Barada, which, therefore, is the Amana.

All the great engineering works connected with the water supply of Damascus are extremely ancient, their origin lost, indeed, in the mists of antiquity, and there is little doubt but that the ages which saw the construction of such works saw also other important, though less durable, works which have now passed away—their ruins buried under the present city's buildings.
