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Management and the place is." Dominique and collaborator, Dominique Labie, had arranged a scientific trip to Algeria to study hemoglobinopathies in Algiers (Mears et al., 1981; Pagnier et al., 1984). After several days of intense work, Cherif Beldjord, the younger of our hosts, proposed that we take the weekend off and go to Ghardaia. To entice us, he said, "It will be a fun trip to the Sahara desert, and you cannot imagine how beautiful the place is." Dominique and I rapidly signed up for this great opportunity. Finally, I would see the Sahara desert, the magical and mysterious Sahara desert.

During the trip, Cherif began to share with us some tidbits about our destination. "We are going to the pentapolis of Ghardaia, the five cities of the Sahara," he mentioned. These were walled villages that were holy towns, and as holy town, they did not admit infidels in their midst after sunset. Hence, stayed in a hotel outside the walls and visited the town during the day.

It was getting late in the evening so we stopped in Djelfa, halfway to Ghardaia, to spend the night. The next morning, we got up early to begin the second leg of our trip, and Cherif began talking again about Ghardaia. To my amazement, he said, "When the Jews lived in Ghardaia." I remember turning suddenly and saying, "What? When? What are you talking about?" He replied, "I don't know much about it, but I know they lived there and not long ago."

My mind began to spin with a plethora of thoughts. Jews

in the Sahara? Did they leave or were they chased out? Was everybody killed? If they left voluntarily, where are they now? All of the sudden, this trip had been turned upside down, and I felt an anxious need to answer these questions.

## THE STREETS OF GHARDIA

At the end of the day, when the sun was setting, we arrived at the doors of Ghardaia. I ran to the entrance of our hotel and climbed to the terrace. I could not believe the striking view before me. As described by Cherif, it was, indeed, a pentapolis with five villages perched atop high pinnacles dominating the M'Zab valley. White houses crowded the side of the hills, and ascending spirals of narrow concentric circles completed the land-scape. At the top, majestically, was a lone minaret of strange and inviting architecture. It was crowded to the point that, from this angle, you could not see the narrow streets. This was a reasonable design used for protection from the merciless blazing sun, only seen previously in southern Spain. The surrounding desert, as far as the eye could see, was a daunting and disquieting sight.

I decided not to wait for my co-travelers who were tired from the trip. I hurried to cross the gates of the city with the proper elan that seemed to be required. I had a plan. The first rather old person that I encountered, I asked, as a matter of fact, in my broken French, "Monsieur, ou est la Sinagogue, s'il-vous-plait?" (Where is the Synagogue, please?). Without hesitation he said, "Rue

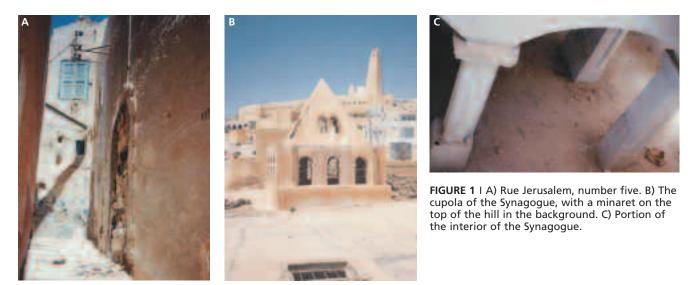




FIGURE 2 | The Zuk (Central Market).

Jerusalem cinq," (Jerusalem Street, number five) and pointing the way. My heart was beating much too fast. I then asked, "Y-a-t'ils des juifs ici?" (Are Jews living here?). He answered, "a couple," I ran up the street and turned on Jerusalem Street, and about half a block down on the right was a semi-destroyed building with a Mogen David, a six pointed star made of Iron on the top of an old wooden door (Figure 1).

I knew then that I had to learn considerably more about these Jews of the Sahara. I left Jerusalem Street and asked for directions to the Zug (central market). Dominique had told me that it was a fascinating place. As I was entering the ample Zuk, an incredible sight caught my attention (Figure 2). In the middle of this large square, they were seven, or maybe ten, very tall men moving slowly, wrapped in Indigo blue tunics, blue turbans and with large sheathed, curved knives hanging from their belts. The blue of their garb came from vegetable dyes for many centuries, until the middle of the nineteenth century when an enterprising German salesman from the powerful Teutonic chemical industry gave them a sample of their bottled blue indigo dye. It turned out to be much more practical, but with one exception they choose to ignore—it stained their skin. Everybody opened a path for them with obvious awe. The contrast to the Mozabites (the inhabitants of M'Zab of Berber origin), who are rather short in height, was striking, and their demeanor was frankly royal.

I had read about these people, and I had seen a related population elsewhere. They were the Tuareg, Berberspeaking people who ran the camel caravans that crisscrossed the Sahara for centuries. They also lived in the Ahaggar Mountains (Tamanrassett) not far from the Dogon country in Mali, were I had previously encountered them as the Kel-Kummer Tuareg (Junien et al., 1997; Mauran-Sendrail et al., 1977). Interestingly, both of these Berber speaking groups and the Mozabites exhibited a significant frequency of the abnormal hemoglobin D-Ouled Rabah (Junien et al., 1997; Mauran-Sendrail et al., 1977; Merghoub et al., 1977). This hemoglobin might protect the population from dying of malaria (Roth et al., 1991), but further work needed to be done in this area. Anyone wishing to buy something in the Zuk must go early and acquire what they need in a public auction. Recently, I had seen the same system still practiced by the Jewish population on the island of Djerba (Tunisia), where fish is auctioned in the market hall, and the "regulator" sits in a high chair, deciding the daily price of each type of fish. After milling around in the Zuk for a couple of hours where I saw pantomime, the firing of muskets, the rapid exchange of mountains of bills, children running around feverishly, and strictly veiled women with extraordinary expressive eyes, I decided to get serious. I visited a few of the rug stores, and I bought two rugs: one, a nuptial rug that a bride receives and the second, a small living room rug. The price payed was looking like a "marchand des tapis," as the French would say, hauling the rugs on my shoulders for the rest of the trip.

The next stop was a minaret that was striking with its gleaming white-wash exterior, lack of sharp edges, round comers, and a few odd-placed, little, square windows, used for protection from the intense sunlight. The projection a pencil of light into the interior dramatically enhanced the experience. These features reminded us of Le Courbousier, the famous Swiss-French architect and, particularly, his rendition of the Cathedral of Notre Dame du Haut (also called Ronchamp). I was rapidly informed by locals that Le Courbousier had, indeed, visited Ghardaia but to my knowledge, never publicly recognized the influence. The same architectural details are exhibited in the tombs of the local cemetery (Figure 3).



FIGURE 3 | M'Zab Architecture (tomb).

## THE ORIGIN OF GHARDAIA

But how did Ghardaia come to be? Ghardaia was founded in the eleventh century by the puritanical Islamic Ibadiyah sect, who converted to Islam in the seventh century CE (Figure 4). The Ibadi were a North African offshoot of the Khariji sect who broke from orthodox Islam shortly after the death of the prophet Mohammed in the seventh century CE. As did the Berber tribes, they became followers of Ibn Ibad and, later, of Ibn Rostom, the Khariji governor of Kairouan (Tunisia's holy city, and, according to some, the fourth holiest place of Islam). In the eighth century CE, a Rostomi state was formed in the northern mountains in the oasis of Tiaret and was destroyed in 909 CE by the Fatimids.

The Ibadi/Karijii retreated to the south and finally ended up in the M'Zab, which became the land of the Mozabites. They conquered the desert by creating oases with date palm groves watered by six dams that they built across the Oued (river) M'Zab, appropriately colored blue (the color that repels evil), and by thousands of painfully dug wells. Of course, Oued M'Zab runs with water only every four years or so, therefore constructing the dams critical. The Mozabites grow vegetables, fruits, legumes, and cereals in these oases, and protect the crops from the blazing sun by large palm trees.

Since this trip took place in the mid-1980s, I forget how I came to know the name of Lloyd Cabot Briggs, a Harvard Professor and member of the Peabody Museum of Archeology and Ethnology in Cambridge, Massachusetts. On my return to the States, I searched for his work and found a monograph written with his associate, Ms. Norina Lami Guede, a registered nurse and a Mozabite, entitled: "No More Forever: a Saharan Jewish Town." A tragic, but in many ways, a heartening tale and a remainder of the dark and brilliant side of humanity (Briggs, 1964).

How and where did the Mozabites and the Jews establish their alliance of cohabitation? Although the Mozabites speak a Berber language, their long term origin is a bit of a mystery. Bosch et al. (2000) have analyzed a large set of autosomal short-tandem-repeat (STR) loci in several Arabic and Berber-speaking groups from north-west Africa (i.e., Moroccan Arabs, Northern-central and Southern Moroccan Berbers, Saharawis, and Mozabites). When the north-west African populations were grouped according to cultural or linguistic differences, the partition was not associated with genetic differentiation. Thus, it is likely that Arabisation of the Berbers was mainly a cultural process. Southern and North Central Berbers and Mozabites are clearly genetically distinct.

## GENETICS AND THE ORIGIN OF THE MOZABITES

It has been proposed that the inhabitants of the M'Zab forebearers were decedents of the Semitic Phoenicians,

Carthaginians who survived the Roman destruction of Carthage in 146 AD. Some have pointed to the triangular door decoration, the signs of the fish (that are found among Arabs and Berbers as well), and the signs of the sun and the stars, as indications of Carthaginian influence, as is the custom of laying sacrificial offerings on graves (Muller, 1988).

Genetic analysis based on STRs demonstrate that the major outlier within north-west Africa are the Mozabites, where genetic drift (possible in a small endogamic population in which genes can be lost by chance over time) or founders effects (that the Phoenicians involved in the founding could have been by chance an odd aggregate of Phoenician genes) may have altered haplogroup frequencies. In any case, they are a genetically unique human group. Phylogenetic analysis of mitochondrial DNA (mtDNA) performed in Western Mediterranean populations by Plaza et al. (2003) demonstrated that the Mozabites are very distant from Berbers but closer to Algerians and Mauritanians. Again, the same reasons discussed above might apply here regarding this maternal inheritance pathway.

The Englishman R.V.C. Bodley, a friend of T.E. Lawrence, became familiar with the land of the Mozabites (Muller, 1988). In Wind in the Sahara he wrote that the Berber is a sedentary farmer and the Mozabite is a city dwellers. The latter never leaves the city unless he is so poor that he cannot afford to hire an Arab or a Negroid to work for him. The Mozabite is usually a wealthy merchant while the Berber considers himself fortunate if he has enough to eat. During the great famine of 1921, when Berbers and Arabs throughout North Africa were dying of malnutrition and the Jews and French were also suffering, the Mozabites had all they needed. Paying in gold, they imported grain from the United States.

The origin of the M'Zab Jews is not clear, but Briggs (1964), citing Chouraqui's Les Juifs d' Afrique du Nord, contends that they settled in Tamantit, after the Roman Emperor Trajan ordered the extermination of the Jews in Cyrenaica in 118 CE (located north-east of present day Libya and directly to the west of Egypt). Cyrenaica was colonized by Dorian Greeks in the late 7th century BCE, and fell to Alexander the Great in 331 BCE. The country subsequently came under the rule of Ptolemy I who is said to have settled Jews in the region.

## THE ORIGIN AND THE TRAVELS OF THE JEWS OF M'ZAB

Jews of Cyrenaican origin (eastern Berbers) might have mixed with Sephardic Jews. Nevertheless, the Jews of Sepharad (Spain), in turn, have an origin that it is not entirely clear. There is persistent dispute as to when the Jews arrived in Sepharad, present day Spain. Some say that it was when the Babylonian King Nebuchadnezzar conquered Jerusalem in 586 BCE, destroyed the Temple



**FIGURE 5** I The Arch of Titus. Depiction of the triumphal march of the Roman soldiers through the "Foro Romano," returning from Jerusalem and carrying their booty: the sacred Menorah (center image), the Table of the Shewbread shown at an angle (not apparent in this photo), and the silver trumpets (extreme left and upper third), which called the Jews to Rosh Hashanah. The bearers of the booty wear laurel crowns and those carrying the candlestick have pillows on their shoulders.

(Destruction of the First Temple), and exiled the Jewish people, some of which went to Sepharad, while others went to Babylonia. Still, others established Jewish communities all around the Mediterranean, including Egypt where they constructed a Temple in Elephantine, and on the North African coast, especially in Carthage, and on the island of Dierba. Others contend that Jews arrived to Sepharad around 70 CE, when Roman legions under Titus conquered the city and destroyed the Temple (Destruction of the Second Temple) and forced the Jews into a second diaspora (Figure 5). The Sephardic sources in Spain are equally divided: the Jews of Granada contend that after the destruction of the First Temple, they came to Al-Andalus (present day Andalucia) where they founded Granada and later extended to Cordova and Toledo. The name of Toledo could have come from either of the Hebrew words "toledot" or "titull." The Jews of Merida claim that the move to Al-Andalus was after the destruction of the Second Temple. For the history of Spain, this is an important dilemma. For the history of the Jews in M'Zab, all of this mattered less since their migration to the Sahara occurred after the destruction of the second Temple. The Sephardic physical aspect could be derived, not from the migration of Sephardic Jews from Sepharad (Spain) but from the same stock that populated Sepharad.

The M'Zab Jews prospered beyond their dreams in Western North Africa but where again forced to move when Moslem fanatics destroyed Tamantic. These Jews appeared to have joined the Ibadi/Karij sect in Tiaret before the exodus to the Sahara. When these two ethnic groups arrived in Ghardaia they began building a city that contained a Mellah (Jewish Quarter), a town within a town (Figure 6). According to Briggs (1964), its members had no dealings with the communities surrounding them except commercially. This helped with their endogamy that resulted in high inbreeding. Over the centuries, they also became isolated and unique, sometimes super-Jewish and sometimes singularly un-Jewish.

The Mellah had very narrow streets, and only two were barely wide enough to allow a cart or a car to pass. It also had tunnels, some short but one that was particularly long, dark, and narrow. The walls of this tunnel were consolidated from the debris from much older houses. Before the French took over, it was the ancient entrance to the Mellah that the Mozabites use to lock up at night from the outside. Small plazas dotted the place, some with wells. The main synagogue on Jerusalem Street was not in the square but was on top the narrowest of streets. Briggs (1964) describes the old synagogue as spacious, airy, and well lighted by a high pyramidal cupola that was still intact when I saw it. This building was constructed at the end of the nineteenth century, because the old synagogue was accidentally destroyed by fire.

In 1889, the French finally controlled all of Algeria as far down as M'Zab. The beginning of the end for the French in Algeria, started suddenly on the 8th of May, Victory in Europe Day, 1945, when a disorganized uprising of Algerian villagers massacred Europeans, mostly French, with knives and pitch forks. The Foreign Legion was called in to bomb and strife the insurgents, and it was



Fac. 2. Simplified plan of the city of Glundaia. Approximate limits of the Jewish quarter: old (mainly residential), ----; new (mainly commercial), ----, Sinded areas represent enclosures, such as gardens, freight yards, cre. Many streets appear to be interrupted where they pass through archways or tunnels beneath houses.

- I. White Sisters' mumery,
- 2. White Fathers' monastery,
- J. Murker place.

- . Mosque, highest point in the city,
- 5. Malchlouf Partishe's aloop, on the Zgeg of Ideed.
- 6. Synagogue.

## FIGURE 6 | The Mellah (Jewish quarter)

(reproduced with permission from Lloyd Cabot Briggs and Norina Lami Guéde, *No More For Ever: A Saharan Jewish Town*, Papers of the Peabody Museum of American Archaeology and Ethnology, Harvard University, vol. 55, no. 1. Copyright 1964 by the President and Fellows of Harvard College.)



FIGURE 7 I Jews from Gardhaia: A) males, B) females (reproduced with permission from Lloyd Cabot Briggs and Norina Lami Guéde, *No More For Ever: A Saharan Jewish Town*, Papers of the Peabody Museum of American Archaeology and Ethnology, Harvard University, vol. 55, no. 1. Copyright 1964 by the President and Fellows of Harvard College.)



over in days. But the Moslem rebellion was only starting.

Besides the Mozabites and the Jews, there were Arab nomads (the Malekites) hired to protect them from marauding Shaamba nomads. These Arabs were masons, shepards, tailors and leather workers, etc. Some Jews were imported from the Tunisian island of Djerba into the M'Zab because of their abilities as craftsmen. In addition, some sub-Sahara Negroid Africans (Haratin) were incorporated as gardeners, a function that Mozabites and M'Zab Jews considered indispensable. All of these communities lived peacefully with each other but, undeniably, with a certain amount of tension.

The Jews were allowed to build Synagogue, worship freely, and follow all religious ceremonies without restrain. Their isolation and strict inbreeding was welcome, since they did not want to mix with the other ethnic groups. One restriction, before the French occupation, was that they were forced to wear black robes and black turbans. Briggs (1964) remarks that the Jews of M'Zab did not "look" Jewish (when compared with European Jews) and recognized that this must be because they were "Sephardic-" like, as discussed above (Figure 7). After the French occupation of M'Zab, they dressed like everybody else except for red headdress of soft felt or sometimes white scull caps instead of turbans. Maybe because of inbreeding, the rate of deaf-mutes was high (2.5%), but they overcame the problem with learning sign language, both the affected and the no-affected.

Briggs (1964) also demonstrated that the M'Zab Jews were highly dolichocephalic (index close to 72 for men and 73 for women) while European Jews average indexes of over 80. In other words, the M' Zab Jews had craniums that were long in relation to their breath. Which one is closer to the original Jews? It is hard to tell, but the European Jews obviously had a higher admixture coefficient with other distant ethnic groups (Slavs, for example) than the M'Zab Jews. In addition, genetic drift or founder's effect could explain this apparent discrepancy. Another interesting aspect of the life of M'Zab Jews was their religious rites. The kittab (initiation ceremony) of five year old boys was elaborate. Briggs (1964) witnessed a kittab in the early 1960s. The word kittab is of Arab origin and it means "one who writes with speed and ease," which in the Jewish tradition reiterated, for all to hear, the sense of being the "people of the book" (Briggs, 1964). The kittab went on for thirty days, with many occasions for eating and imbibing (beer and anisette). The eating involved male kid meat and testicles that were eaten ceremoniously. At the end, the candidate got a haircut and bathed thoroughly in preparation of being dressed with an elaborate series of gold or silver embroidered colored garbs with many cabalistic designs. The process culminated with a final joyous ceremony in the synagogue where five year old children celebrated boisterously and en masse. The isolation of the Jews in the Sahara particularly helped to keep their traditions intact for many decades, even as they were approaching their impending Diaspora, yet again.

After passing the kittab, the M'Zab Jewish child submerged himself in a deep religious experience. Here, the Sephardim part company with the Ashkenazim. Some say that this is because the Sephardim life design was a prolonged and peaceful relationship with the Christian and the Moslem that only broke down with the ascension of Catholic Kings to the reign in Sepharad, after the defeat of the Muslims, and with the establishment of the Inquisition and the expulsion of the infidels (Arabs and Jews) in 1492. Before this catastrophe, the Sephardic Jews benefited, in addition to the study of the Torah and the Talmud, from scientific thought, Greek philosophy, and Arab literature.

The Ashkenazim in Western, Central, and Eastern Europe suffered rapidly from a hostile environment, that pressed many into a fundamentalist approach of the persecuted (as it did to Calvinists, Puritans, and the Ibadites) or into a rapid semi-assimilation, as the German Jews experienced that unfortunately, ended badly.

As Briggs (1964) established, the young M'Zab Jew learned Hebrew in order to read the scriptures, Arab for every day matters, and latter, French for business discussions that always worked hard at getting along, a strategy that worked well for hundreds of years. In addition, in this isolated site in the world, the M'Zab Jews had in addition a system of magical-religious concepts. One particularly interesting belief was the food taboos, unconnected with kosher limitations as dictated in Leviticus. For example, liver could not be eaten by women with a history of miscarriages, blind people could not eat eyes from a lamb head (a delicacy in North Africa), the lame should not eat off the legs of animals, etc. Sometimes family-specific taboos would be added to the list. Finally, they believed in Jinoon (evil spirits) as did the Arabs, even when nobody had ever seen them. One important response to the evil eye is the color blue, this being the reason why most of the doors in the Arab and Berber villages in North Africa are painted blue. How far back is the belief? Did the original Jews have it?

## THE END

This balanced and stable lifestyle was about to change dramatically. The first signs that ethnic equilibrium was breaking down came in 1943 with the defeat of the Nazis in North Africa. Some began to think of emigrating to Palestine. According to the French records, about 500 to 600 actually emigrated between 1943 and 1955, particularly after the founding of the State of Israel in 1948.

The situation began to change further with the Algerian War of Independence in 1954. The revolutionaries found refuge in M'Zab because the French, by drawing their

jurisdictional line considerably north of Ghardaia, made it a convenient and safe rest/recreation destination for their leaders and combatants. They still were not allowed inside the walls after sunset, since for the Mozabites, they were infidels. Nevertheless, the Malekites were happy with this arrangement that increased their power, but the other ethnic groups began to fear the presence of these interlopers.

Slowly the revolutionaries began terrorizing the Mellah with its 1,250 Jewish inhabitants. The lobbing of grenades into the "Principal Jewish barroom" was particularly threatening. By 1961, most of the wealthy Jews had decided to leave because they predicted the defeat of the French. It did not help that the rebel command ordered non-Jews could not buy property from the Jews. When the prominent Makhlouf family left suddenly in 1962, it took the heart out of the community. Then, to make matter worse, his replacement as Chief of the community died 3 months after his appointment.

On March 19, 1962, representatives of the French government and the rebel government- in exile signed the "Evian Agreement" in France. All hopes were dashed that France would be in a position to protect them. The Jews living north of the French jurisdiction line were offered French passports. Of course, almost all availed themselves to this opportunity and left Algers for Paris. No such luck for the M'Zab Jews.

Two or three hundred young Moslems started a triumphal parade, but the District Commissioner Charles Kleinknecht, in Arabic, called them to disperse. A burst of sub-machine gunfire from an Arab soldier of the Camel Core ended the conversation, and the French retreated. Efforts to charter planes to leave Ghardaia failed at first. Then, a plane landing with Moslem pilgrims was chartered to take several Jewish families to safety. Briggs was a witness to all of this, and described the scene,

> In a moment the refugees had swarmed on the far side of the plane. We could just see them underneath its belly, a shifting kaleidoscopic knot of brilliant colors. And then they disappeared, swallowed up in the great silvery body. Motors roared; another blast of sand and stones struck us as the plane swung around. It thundered down the runway, rose trembling in the dancing waves of heat, and in an instant became a dwindling black silhouette again. It turned in a great circle, above where the city of Ghardaia layout of sight, in the valley miles away, swung off northward, in a beeline, and was gone."

I imagine the Jews on board catching a glimpse, for the last time, of the city they loved and inhabited for over 700 years, and that they will never see again. Mr. Jean Moriatz, the Assistant District Commissioner, the remaining French authority and a righteous man, badgered the French Government to send more charter planes to rescue the remaining Jews and, to their credit, they complied.

While this event meant a catastrophe for the M'Zab Jews that had made their homes in the Sahara, it was, on the other hand, an example and historical experience that is worth remembering: Jews, Berbers and Arabs, who created this oasis and its dwellings, able to live peacefully, side by side, for at least 800 years. Could it happen again? Only time will tell.

The rich M'Zab Jews stayed in Paris and the poor ones went on to Heretz Israel. Today both places have active and organized M'Zab Jewish communities. Hence, the M'Zab Jews have not disappeared. But the chapter of Jews of the Sahara living in the Mellah of M'Zab was closed and it was, in the words of Lloyd Cabot Briggs (1964), "no more for ever."

#### NOTE

All pictures and their sources provided by Dr. Ronald Nagel.

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