Genealogy

Although biological relationships are a universal reality for all human beings, the concepts of "family" and "family bond" depend on both the geographic region and the historical moment to which they refer. However, the concept of "family" can be determinant in a large variety of societies, since it can influence the lines of succession, inheritances and social relationships, as well as where and with whom an individual is buried. The relation between a deceased person and other members of a community, other individuals of the same necropolis, or even with those who are buried in the same tomb can be analysed from the genetic point of view, considering different perspectives: archaeological, historical, and forensic.

1. "Family": The Evolution of the Concept

Since the beginning of history in society, it is thought that humans have always been organized into family groups [1]. If, on the one hand, kinship relationships are a practically universal human experience, on the other hand, the concept of "family" and "family bond" are not universal concepts, either in space or in time [2].

In various societies, the concept of family is restricted to the closest blood relatives, such as mother, father, siblings, grandparents, uncles, and cousins, with whom stable contact is maintained over time. Already, the concept of "relative" is extended to a variable number of individuals and may even include neighbours with a special bond in certain communities [1][2].

On the other hand, the concepts of family and kinship can structure marriage patterns and possible heirs and can even affect where and/or with whom an individual is buried [3].

2. The Concept of Family, Clan, and Kinship

According to [2], "family" is interpreted in the current Western world as a fundamental human institution and construction, which forms the basic social unit of collective action, beyond the individual. On the other hand, according to [1], families are small groups formed by people, linked by culturally recognized marriage ties, or similar forms of conjugal lives, descendants, adopted or not, that typically share a common space (house) over some time. This joint residence is necessary for a time, varying according to the stages of the family circle and respective society. Family ties are not broken simply by leaving the space shared by the family, although family relationships can change. However, the fact of inhabiting the same space does not imply belonging to the same "family" [1].

The term 'clan' is derived from the Gaelic word clann meaning 'children of' and came into medieval English usage approximately in the 15th century, to describe the kin-based character of early Irish and Scottish Highlands societies [4]. According to [4], members of Scottish clans were not necessarily all blood related, regardless of a strong idea of family. The *lineage* and *clan* concepts are not well defined, depending mostly on the society and culture in which they are rooted. An approximation to the possible explanation could be that members of a lineage allege to know the genealogical connections interlinking all members of the group, and these links are viewed in terms of generation and relative birth order [4]. By contrast, persons are members of a clan because they are the descendants either of their fathers or their mothers, and the terms 'patriclan' and 'matriclan' are often used. However, according to [4], clan members in many societies recognize a founding clan ancestor, who is often of mythical or non-human status, and this is also related to totemism [5]. The reason for clanship is related more to ethnicity than biological kinship, and in some cases, "clan" is also applied to territorial groups which are recruited based on both unilineal descent and long-term co-residence. According to [4], "clan" is often used in a symbolic way to "*refer to any group of persons who act toward each other in a particularly close and mutually supportive way*".

In turn, "kinship" is almost always considered a biological relationship between people, except for adopted individuals who, in that case, are also considered to belong to the bloodline.

The Concept of Family, Kinship, and Burial Place

If, on the one hand, the concept of family and kinship can affect where and with whom an individual is buried, reverse thinking according to [3] is also possible. Indeed, where and with whom an individual is buried can inform about the family status, as well as of his/her descendants (both biological and non-biological), regarding a community, other individuals in the same necropolis, or even the same grave. In this way, funeral and burial rituals may represent a possible biological kinship affiliation [3]. According to [3], funeral rites function as an identity for both the person who buries and the deceased individual.

The study of funeral ceremonies is based mainly on written records, where this practice is described according to the family tradition and/or society. However, in prehistoric societies, such as Neolithic or Bronze Age societies, among others, the study between the funeral ritual, the type of burial or cremation, and the possible relationships between individuals tends to be local, given the lack of written information to determine if a certain procedure was common in several places or typical of a specific community. In most cases, these studies are carried out by specialized teams of archaeologists and anthropologists [6], who, through finds of different objects and burial typologies, address various questions related to possible kinship networks ([1][6][7][8]).

Recently, molecular studies, more specifically DNA genetic analysis, have begun to be used considerably to identify kinship relationships within the same burial area [9], since some anthropological indicators, such as cranial and dental similarities, etc., are frankly less precise than the genetic data. However, only the genetic study of a population allows the detection of burial patterns of biologically unrelated individuals (such as adoption), although there are records, both written and oral, that indicate a possible kinship between them.

The study of mass graves, where the genetic study indicates a total absence of close kinship or of any type of common biological lineage among the buried individuals, undoubtedly opens other avenues of investigation beyond adoption. Hypotheses, such as wars and conflicts, diseases, or a place where unidentified people were buried, are examples of cases where, in principle, DNA analysis would be useful to confirm the absence of biological patterns among buried people. However, in addition, it could suggest another kind of situation, where the burials are a reflection of the fact that community bonds were stronger than biological or family ties; thus, it could provide interesting data about social behaviour [10].

For example, in the Pre-Bell Beaker period (initial Chalcolithic) (3700–4000 B.P) in the Central Iberian Peninsula, the main burial pattern consisted of individual inhumations, even though many collective burials have been observed, such as those in El Tomillar (Ávila, Spain), Los Areneros (Segovia, Spain), or Los Cercados (Valladolid, Spain) [10]. However, during the Bell Beaker period in the same region, collective inhumations are not known, and they reappear in the Bronze Age, in places such as Cueva de la Revilla (Burgos, Spain) or Los Rompizales (Burgos, Spain) with a high number of individuals inhumed together; other simultaneous burials also appeared with a fewer number of individuals, such as Los Tolmos (Soria, Spain) [10]. Moreover, we must consider that appearances are sometimes deceptive. For example, in the case of Los Tolmos, the find of a three-person burial, constituted by two adults and a child, seemed to point to a modern classic family (father, mother, and child). Nevertheless, genetic evidence revealed that the infant's and one of the adults' skeletons were related by mother–child kinship, but the third inhumed person was an adult female (not a male as expected), and she was not biologically related to the other [10][11][12][13]. This case demonstrates that genetics could be a great tool to unravel these kinds of issues.

3. Adoption and Genealogy

Adoption is understood as a process whereby a person assumes the parenting of another person, usually a child, from that person's biological or legal parent or parents. Nevertheless, the "adoption" concept has changed in the course of history.

The modern form of adoption emerged in the United States in the middle 19th century, when the American Civil War resulted in unprecedented overcrowding of orphanages and founding homes. As a consequence, the Orphan Train movement emerged (1859), which eventually shipped an estimated 2,000,000 children from the urban centres of the East to the rural region; but the children were generally indentured rather than adopted [14].

Nevertheless, different forms of adoption practice have appeared throughout history. The oldest well-documented adoption practice dates to ancient Rome [15].

Although there is no record of adoption in most ancient chronological periods, it is very important to take into account that it does not mean the adoption phenomena did not exist, and this would have consequences when approaching an archaeological find. For example, in the cases of a collective (simultaneous) burial, it has been assumed that the inhumed persons belonged to the same biological family, but it has been demonstrated that this is not necessarily true. Burials have been found with what seemed to be a complete family nucleus, but where nonetheless the deceased did not maintain family ties [15].

There is a wide register of adoption cases in the Roman world. To study this, onomastic evidence is useful, and the main features of Roman nomenclature after adoption are explored. A general observation, in this case, points to the practice being most relevant among the elite and the imperial family, and many times adoptions were used to serve political rather than familial ends because adoption was considered as a mode of succession. Many of Rome's emperors were adopted sons. When the family patriarch was about to die without a male heir, an heir could be provided from another family through adoption.

Adoptions have been detected in both eastern and western cultures throughout history, but with different objectives. While the Western idea of adoption is focused on extending family lines; evidence suggests the goal of this practice in oriental cultures was to ensure the continuity of cultural and religious practices.

One of the applications of lineage markers is to track the membership of living descendants of certain famous people with the purpose of their identification (Romanov Family or Columbus, for example). Many times, these searches are performed in comparison with surnames or family names. In these cases, it is necessary to take into account that the existence of an adoption event could alter the analysis, because the surnames lineage may not match biological lineage. Similar issues would occur in the case of children descended from extramarital affairs.

After the decline of the Roman Empire, in the late Middle Ages (1300–1500), the rules began to change, bloodlines were paramount, and the adoption practice was denounced. For example, France's Napoleonic Code made adoption difficult, requiring adopters to be over the age of 50, sterile, older than the adopted person by at least 15 years, and to have fostered the adoptee for at least six years [16]. English Common Law outright forbids adoption. For this reason, child abandonment rose with the fall of the empire, and many of the foundlings were left on the doorstep of the Church. Then, the oblation concept emerged, whereby children were dedicated to lay life within monastic institutions and reared within a monastery, creating a system through which abandoned children did not have legal, social, or moral disadvantages. As a result, the Church took the role of adopter of these abandoned and orphaned children. As the number of abandoned children grew, the church began to regulate the practice leading to the first official orphanages in Europe.

Before the industrial revolution, it was usual to notice the adoption of children of single mothers, because there was a negative stigma against them, and it was a way to avoid the shame associated with an illegitimate child. Also in this era, some mothers or families may have placed their child for adoption in such cases as a poor family situation, poverty, or sickness.

Nowadays, transracial, transcultural, and transnational adoptions have increased substantially as have special needs adoption. A typical situation could be the "combined" families, formed by a couple with descendants from past couples. However, this case could be assumed as a special kind of adoption, where one or both of the members of the couple "adopts" the partner´s descendants. In these cases, the cultural concept of family is not concordant with the biological concept of kinship. Regarding same-sex marriage, in the same way as divorce, the simple couple relationship makes no sense analysed from a genetic point of view, unless the couple´s descendants are studied. In this case, we can find cases where only one of the members of the couple presents a biological relationship with the descendants of the family nucleus, or even in the case of same-sex marriage with adopted descendants, without any biological bond with descendants.

From the forensic point of view, many difficulties can be imagined when identifying a person whose biological parents or descendants are unknown. To solve it, many databases have been created to register personal DNA profiles.

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