

# The Human Dimension - Emerging Factors over the Ages

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*The reason d'être of this section is to probe further, the human dimension and unfolding factors over the ages, including some other salient points regarding skull and jaw features, genes, demography, and health aspects.*

The path of human life is very long and occupies so small a place in Space-time. There is virtually an infinite degree of complexity in its anatomical and physiological structure and function, more so when one considers that this has been going on so far back in time.

Over the ages, growing slightly bigger and better, brains had obviously positive consequences in the ascent of man. About one fifth of the calories, vitamins, etc. which we consume go to fuel our brain. Good balanced nutrition makes for better developed brains, a higher stature possible and more mobility.

In southern Europe, the late Pleistocene period was marked by a gradual expansion in the area of human development. The Mediterranean region must have been an attractive one to Man in late glacial times with compared to central Europe, its mild climate and longer hours of sunshine. The attraction of Mediterranean Islands would have increased markedly when Man mastered the sea and could use it for trade, settlement or communication. This was more or less the time when the human story and settlement of the Maltese Islands commenced. The Maltese came into the picture as a Neolithic people and have journeyed far in the last 7500 years or so. However the exact chronology is not fully clear.

In Sicily, radio carbon dates (although not necessarily exact) indicate that some parts of Sicily were occupied by Man well before the end of the last Ice Age that is much earlier than 12,000 years ago, perhaps approximately around 20,000 years ago (?) or earlier.

The Maltese Islands assumed a strategic role which resulted from their strategic position in the Mediterranean. After the Neolithic and Bronze Age periods, the Phoenician colonization affected considerably the genetic make up and way of life. Their colonization also enriched certain skills of the Maltese.

In the blood of our people there is a mixture of Semitic, Sicilian, Arab, Greek, Italian, Spanish, French and to a limited extent also British and Nordic genes. Genetically we are the heirs of the ages and various formative factors.

The melting pot has not made for uniformity among our people.

It is reasonable to assume that over the millennia, Mediterraneans underwent minor modifications in stature and complexions. Mankind and life are compounded of many factors. Besides thinking about 'ethnicities' or populations, a more constructive way to think about genetic variations is to consider the genome of any particular individual as a mosaic of haplotype blocks. The study of genetic variation is a complex subject in a complex world with interacting factors and with implications in development and growth, in medicine, diseases and weaknesses.

In general, the shifting nature of the human genes is linked besides other factors, with the movement of migrants from one country to another, either intentional or through forces of circumstances. In this way, shifts in gene patterns have been created in our islands through the millennia, as elsewhere in other countries.

The function of most genes is determined mainly by the three dimensional (3D) structure of their protein product. Although many mutations in disease genes map to non-coding regions, the majority of characterized mutations affect the structure and function of proteins. One notes that in general, those diseases at the genetic level are generally inherited ones associated with a single gene and strong penetrance. However it seems that there are various different mechanisms whereby mutations can cause diseases or certain weaknesses and which are not fully understood.

The overlapping layers of people who colonised our Islands all left their mark; a genetic mix spread over the centuries. This breaks down into an anatomically and physiologically coherent strong influence of genes and features which strengthened the Maltese and was conducive to, on the whole, healthier inhabitants. The 18-19th centuries was a period of significant population growth, this trend continued in the 20th century.

I am inclined to say that in general terms an unobtrusive natural selection is still shaping to a very limited extent, our Maltese and Gozitan people in certain ways, providing also insights into the gradual developments, health and medical aspects. As time goes on, with the expansion of DNA techniques, researchers will be able to focus more on our past. The importance of the genetic pool which affects our characteristics, complexions and structures is obvious. Genetic research will help to throw more light on better images of the Maltese, past and present.

The main influx of new peoples was as follows: 750 BC – Phoenicians; 210 BC – Romans; 870 AD – Arabs; 1091 AD – Norman conquest; 1530 AD – Knights of St. John; 1565 – foreign troops who came to help during the Great Siege; 1798 – French occupation; 1800 – arrival of the British – this lasted up to around 1979.

The very large number of Sicilian and Italian immigrants since Neolithic times and later the Arab domination affected considerably the genetic make-up. In my studies about Maltese and Gozitan ancestry, I concluded that among the wide spectrum of our population we also have quite a number with Greek physical features. It is relevant to mention that at a period during the Greek expansion, a large number of Greeks and others from the East had settled in Sicily. Many of this background came over with other immigrants.

At this point a significant fact should be mentioned. A Greek community was already established in Birgu before the arrival of the Knights of St. John in 1530. Furthermore the numerous followers of the knights who came from Rhodes were mostly assigned to three different localities in Birgu, who in due course were assimilated among the population.

During the Aragonese period (1283 – 1410) there was a sizeable influx from Sicily and also some others of Spanish descent. Dott. E.O. Piazzì had come across documentary evidence in Palermo which showed that because of the poverty and bandits which existed in Calabria, many families had migrated from there to Sicily and others to Malta.

The influx of new blood went on over the centuries. When after the Great Siege, the new city of Valletta was being built, a considerable number of construction workers came over from Sicily.

According to old marriage records many of them ended by settling here and married locals. The same thing happened on a much minor scale when a number of Italian and Spanish skilled workers were employed during the construction of the Breakwater in the Grand Harbour early last century. Several who were lodged at Paola, Valletta and Hamrun married Maltese and settled here.

During the Risorgimento a large number of Italians from central and northern Italy because of their unsettled situation (Garibaldi period) came here. In the interesting publication 'Echi del Risorgimento a Malta' by Dr V. Bonello we read that

“since the first rumblings of 1821, here were to flow the currents of the Italian emigration which at one time, swelled to nearly two thousand persons”.

These included many intellectuals, writers and craftsmen. Italy's unity was accomplished in 1870. Soon after, the bulk of the refugees returned to their homeland but certain documents and marriage certificates show that almost three hundred including children born here remained and settled in Malta.

In 1881 and 1882 (unstable situation in Egypt) about 5,000 persons of Maltese origin many of whom were married to Italians, French, Greeks etc., arrived in Malta. A number of these refugees remained and settled in Malta.

Between 1900 to 1979, a considerable number of Maltese women married English servicemen. In 1911 the Royal Commission, among other details about the local scene, reported that “the Maltese type is Southern European, but the people are fairer (generally) in colour, in the towns at any rate ... and have a better appearance than Sicilians and South Italians”.

Towards the end and after the Second World War, a small number of Yugoslavs settled and married here.

One can describe the Maltese as being mostly of Southern European stock with a small minority having North European features. Of course to a very small degree other racial types have left their mark.

Before the Knights of St. John arrived, life was often a struggle for survival. A few general considerations about nutritional levels between the 16th and 19th centuries may not be amiss.

The population was dependent mostly for its grain and various food supplies on Sicily, because the local agricultural production was far below that was needed. It was a society where bread, oil and wine were consumed in large quantities. Poverty was rampant. The basic food for the majority of manual workers was generally about half a loaf of bread with tomato paste for most meals with olives, a piece of *għidra*, oil and when in season tomatoes, broad beans and a fruit. The evening meal often included nutritious minestra with a variety of vegetables. On Sundays it sometimes included a piece of chicken or rabbit. Meat was expensive and when available fish was consumed. The better off section consumed a more varied diet which included more meat, chickens, fowl and a variety of fruit and vegetables.

The scanty documentary evidence indicates that as in many parts of Europe, the nutrition of a large proportion of the Maltese and Gozitans was not satisfactory and did not contain enough proteins, vitamins, folic acid and certain minerals which are now taken for granted. For a high proportion meals were frugal.

Deficiency anaemias and pellagra among the elderly were fairly common.

Pellagra is a syndrome due to a deficiency of niacin or tryptophan. However the nutrition of the knights of St. John and their staff was varied and too rich. In fact a number of them tended to suffer from gout.

Furthermore the bread of the knights was produced from white flower while that of the population was of muslim which consisted of a mixture of wheat and barley (*mischiato* in Italian or *mahlut* in Maltese).

Painters of past times such as P. Lanetti, S. Calejja, G. Gianni, the Schranz brothers, C. Brocktorff, A. Favray, M. Bellanti and T. Gudin when focusing on Maltese and Gozitan scenes which include Maltese persons indicate that in general men and women of their times were somewhat shorter than present-day Maltese. In broad terms one of the factors which brought this about could in my view have been the insufficient nutrition among a high proportion of the population. Genetic factors were also involved.

Health hazards were high. Almost three out of four children born between the sixteenth to the nineteenth centuries failed to reach their second birthday.

I believe that change is not restricted to stature, but probably have encompassed the axial, appendicular and facial features. I do not wish to be dogmatic and I humbly admit to possible pitfalls. I wonder what the secular trend increase has been since the early times of the Order of St. John regarding depths and facial heights. Was it about one or two percent? I venture to say that it was perhaps almost two percent.

This study (not yet completed) which I commenced 50 years ago and continued in stages over the years has not been easy. It was based mainly on observations and calculations of the face size and shape in adults and schoolchildren who came mostly from Cottonera, Paola, Marsa, Luqa and Hamrun. One important fact was that many of the adults had grown up on a rather unsatisfactory nutrition level while children of the postwar era were much better fed with more calories, protein, milk, vitamins,

minerals, folic acid, fruit, vegetables and a fair amount of meat. One must add improved medical and health care, better hygiene and pasteurization of milk.

Another trend which I believe has genetically influenced depths and facial features is that quite a number of women in Cottonera, Paola and the Sliema – St Julians – Msida area have between the years 1900 and 1979 married servicemen in the British Services.

The nutritional level and the hazards of life are among the main factors in natural selection. Those individuals who generally obtained a good regular sustainable food level stood a much greater chance of survival and development than those not so fortunate. Those characteristics of an advantageous character handed on from parents to offspring, including some immunity to certain diseases obviously result in good.

Nature tends to favour the strong and a wide spectrum of diseases often wipes out the defective and the weak. To give some examples. Throughout the centuries Malta has had various epidemics. In the epidemic of plague between 1814 and 1815, out of a population of just over 100,000, 4,572 died. In 1837, cholera broke out on a large scale. Out of a total of 8,735 cases afflicted, 4,250 lost their life.

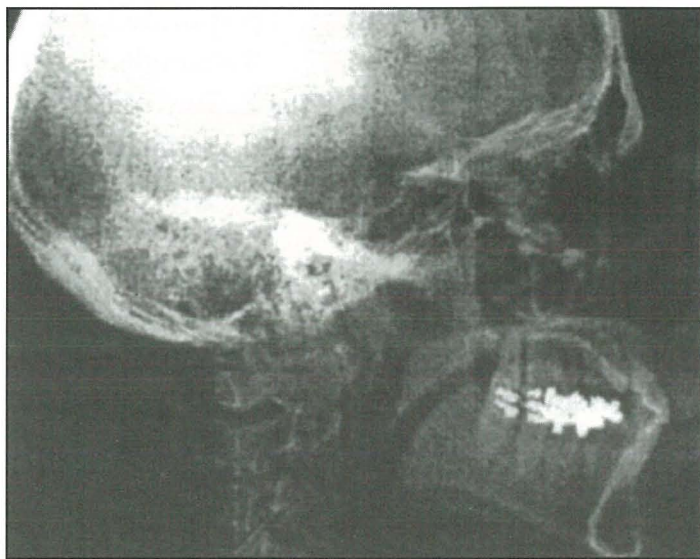
As in other parts of Europe, a severe widespread epidemic of Spanish flu came in two waves: the first in mid-to-late 1918 and the second in the spring of 1919. These caused disruption in everyday life and the death of hundreds.

The absence of retinol or its pro vitamin in the diet over some months produces changes in the retina of the eyes (night blindness), epithelial tissues and the bones.

Another point should be mentioned. A boy may inherit genes for an average stature. However if he has a very poor diet for repeated long intervals, deficient in bone-building elements, all vitamins including Vit B complex, iron, zinc, amino-acids for protein construction (including disturbance in protein aggregation), etc. , he will end up below normal growth. It has been mentioned that specific proteins are required for secretory granular biogenesis in certain organs ( R. Day et al, 1995).

During the wartime years of late 1941 and 1942, when rations were very poor, there were some cases of impaired growth and rickets due to gross malnutrition which were noted by Dr Paul Boffa at Cottonera and by Dr Joseph Debono at Marsa. Their condition gradually improved when cod-liver oil, some minerals including iron and later free milk was issued to them.

The usual method for studying growth and/or skull size involves taking predetermined measurements on a series of skulls at different stages of growth. To study the changes over time and growth pattern, a fixed plane or point of registration is established; generally a line which connects the anterior midpoint of the foremen magnum to the posterior midpoint of the foremen magnum. Other measures are taken from this point or line to



A cephalometric X-Ray of a present day Head. Jaws – skeletal Class I. The cephalic index of a considerable number of Maltese has probably increased slightly since Neolithic times, likewise the axial and appendicular.

various other anatomical points and the brain case, the spot on the middle between the orbits, the farthest anterior projection of the browridges and the highest point on the skull vault.

One must take it into consideration the fact that growth changes go on in three dimensions. X-Rays can furnish us with other aids.

Unfortunately most of the skulls and bones unearthed from Hal Saflieni had been discarded and lost. However Dr T. Gouder gave me the following data concerning several preserved ones. Their cranial index are as follows:- 63.3; 65; 69.7; 70.5; 71.4; 72.3; 72.5; 73; 75.4.

No study of ancient Man would be complete without mentioning at least briefly the types of skulls. Skulls are classified mainly by the cephalic index, that is:

$$\text{Cephalic Index} = \frac{\text{Maximum breadth of skull} \times 100}{\text{Maximum length of skull}}$$

Types: Dolichocephalic (long Headed), Subdolichocephalic (moderately long headed), Mesocephalic (moderately short) and Brachycephalic (short headed). To elaborate further, for example a brachycephalic would be a man with a skull, looked at from the above, which is short from back to front and so broad or round headed, while a dolichocephalic would be long headed.

Although this is a useful classification it is of limited use in racial studies. As a mnemonic, 'branchy' and 'broad' begin with the same two letters. The cephalic index is breadth expressed as percentage of length, branchy over 80 per cent, dolicho 75 per cent.

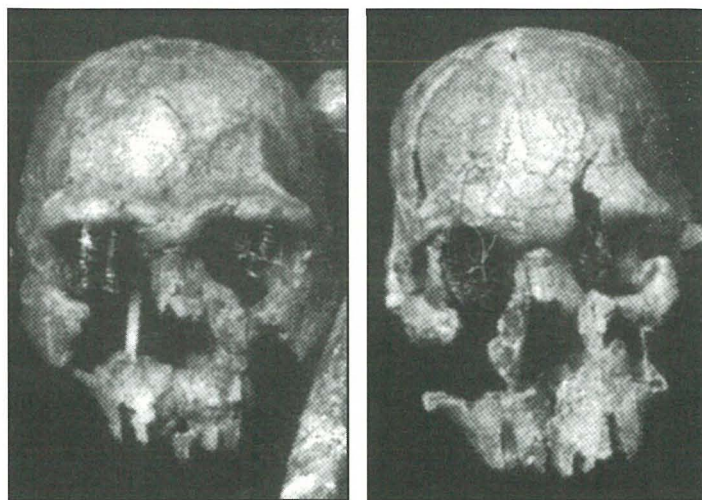
The skulls which had been found at Hal Saflieni were classified as of early Mediterranean stock. In the opinion of Dr Tancred Gouder with whom I had discussed various aspects, two of the skulls showed a little relationship with older types, however they could not be classified as Neanderthal. These two which he had analysed have a slightly thicker skull, low forehead and slightly prominent brow ridges. However, these do not show very pronounced dolichocephaly and convexity of the forehead.

It is surmised that most Neolithic people and those of the pre and Middle Ages did not reach an old age and the average life span was probably not more than 40 to 50 (?) years of age.

I am inclined to say that the cephalic index of a considerable number of the Maltese has increased slightly from Neolithic and Punic times and this applies also to the gabello - occipital length. It seems that certain Maltese are very gradually tending to develop a slightly more plano - occipital type of skull than in ancient and later times.

One other feature that struck me in one of the skulls which Dr Gouder had shown me is a slightly prominent chin which I could classify as almost prognathism.

Apart from the above mentioned, I think that in certain ancient crania, the bizygomatic and palatal breadth were rather



Two partly crushed skulls which had been unearthed in Malta (courtesy of Dr J. G. Baldacchino)

smaller in comparison with present day ones.

In a lecture which Dr J.G. Baldacchino had given (1965), he expressed the view that there are slight differences between the anatomical features of some mandibles from Hal Saflieni and some others from some other sites, such as from Bur Meghez. He also commented that the majority of the Neolithic and Punic skulls which he had examined were rather thin, fairly long and slightly built. In my opinion this applies also to many skulls of later periods, with of course some exceptions.

Regarding mandibles, a few of those which Mr. F. Mallia and Dr T. Gouder had shown me, had a very slightly higher ascending ramus and a slightly deeper sigmoid notch.

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