

SOME ASPECTS OF THE ANCIENT HUMAN PAST AND TREPANATION OF THE SKULL

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When tomorrow's historians chronicle the 20th century, they will almost certainly highlight Mankind's increasing consciousness of Life and advances in medicine and surgery. If Medicine can be defined as the conscious attempt to fight disease and alleviate suffering, then it is old as human consciousness itself.

Not infrequently the human ancient past is not clear and shrouded in the mists of antiquity. However in the light of research, some evidence from palaeontology shows that early Man did try to lessen suffering and alleviate pain. Survival of the fittest went on in all parts of the world, including our Islands. Infant mortality was indeed very high. In studying the past, we are given within limits an opportunity of correlating some aspects of Life and palaeontology.

To a great extent, it was the success of simple tools that started the whole trend of the ascent of Man and led over the ages, to the civilizations which gradually went forward. Our ancestors were not fossils, they were striving creatures with the will to live. What evolved very slowly was a pattern of life - exploratory and vigorous. More tools, hunting, selection and survival of the fittest and the environment produced ancient Man of the genus Homo, perhaps half a million years, or so ago.

The brain evolved under the influence of more complex social life, genetic and evolutionary factors until Homo Sapiens appeared perhaps as recently as 60,000 years (?) ago, probably earlier. Of course there must have been other unknown factors and also an underlying supernatural force from God the Creator.

Limitations of space have made abridgment of this paper necessary. What form the earliest medicine took must include an element of conjecture in the absence of adequate documentary evidence. However in the ascent of Man through the ages, there must have been a strong will to surmount difficulties, a sense of self protection and care of the young.

In my opinion, the generic terms 'Stone Age', 'New Stone Age' and 'Neolithic' are not clear enough and in a sense inadequate in so far as they apply to certain aspects and habits of life pursued by ancient Man and his skills. The early settlers in Malta and Gozo who most probably came from Sicily and later other Mediterranean lands, were fairly advanced.

To begin with, the colonists made Malta and Gozo a land fit for a people to live in and gradually develop.

We cannot deny them either enterprise or some skills, as proved by their work: temples, pottery, ornaments, growing crops and rearing animals. It is indeed amazing. Within their rather limited dimensions, our Islands are enriched with prehistoric edifices and cart-ruts that are older than the Egyptian pyramids and Stonehenge.

Man shows himself in two ways, in pieces or fragments of his own skeleton and in his use of tools, some of which he fashioned out of bones or stones. Stone has a far better chance of survival than bones, although under certain dry conditions they can be preserved for thousands of years. There is evidence that for a fairly long period of years, perhaps around (?) 2500 B.C., or so, judging from signs at the Hal Tarxien Temples and a few other places, for some unknown reason - which could have been invaders, some disease or pestilence, Malta lost all or most of its inhabitants and later a new Bronze Age people arrived. The change is an important one, however the chronology is not at all clear.

At a point in time, for a long period of years, as proved by burnt bones and other signs, the dead were cremated and thus unfortunately, the skeletal evidence that would have afforded indication of their racial affinities and other facts concerning that particular community were lost.

Over the last centuries a considerable number of skeletons and bones have been unearthed from various parts of the Maltese Island, such as from the Hal Saflieni Hypogeum (unfortunately almost all of them had been discarded and lost) and from numerous Punic tombs and elsewhere. Dampness and the pressure of the soil, in the course of centuries, caused most of the thousands of buried skulls at Hal Saflieni to be crushed, and consequently only about a dozen were saved and measured - found to be dolichocephalic that is of the early Mediterranean type.

It is significant that among the archaeological remains from Mnajdra, some statuettes representing diseased parts of the human body were found. Sir T. Zammit inferred that the place in which they were discovered could have been a section to which the sick were brought to be attended to by the healing deity.

When the complex of four juxtaposed temples at Tarxien were excavated, various objects which included pottery, grinders, hard round stones, hammerstones, statuettes, stone vessels, faince, fish

vertebra, flint, chert and obsidian implements, two skulls, some pieces of human and animal bones, small copper axes and daggers were found.

Perhaps as early as 1000 B.C., civilization of a kind had come with the arrival of the Phoenicians - a seafaring Semitic people from the region around Palestine. Later on during the next 450 years or so, as Carthage came to dominate the central Mediterranean, it is likely that a considerable number of Carthaginians settled in Malta and Gozo, bringing new skills and some limited medical knowledge which they practised. What I said applies also to the Roman and Arab domination.

In future, DNA could have very significant value in the interpretations of some aspects of the human past and prehistory as C_{14} did 50 years ago. DNA can be preserved in the traces of collagen surviving in ancient bones. Improvements in assessing DNA will in due course improve further the analysis. DNA can be preserved under certain conditions in ancient and also more recent bones, even in a fragmentary state. However it requires very careful attention to avoid contamination from the environment and other present day sources or when exposed to certain influences. Furthermore DNA analysis is not a simple procedure and is expensive.

Back to the Hal Tarxien Temple: The following extract from a letter dated 30.x.1974, which the eminent archaeologist from Denmark- Dr. Hans Helbaek had sent me, throws some light on an interesting point, and speaks for itself:

Dear Dr. Boffa,

I have received your letter of the 20th instant. In I September 1953, I gave a report to the then Director of the Museum. He had found a small hoard of Horsebean in the Hal Tarxien Temple, which I interpreted as a temple offering, in analogy with the documented later practice of Greeks and Romans.

The Beans (*Vicia faba* var. *minor*) are small and angular. No grain was found. But you may state that according to my experience it is quite improbable that wheat and barley should not have been grown in Malta at this date, approx. 1500-1400 B.C. Only the find was too small and accidental,

Good luck with your further studies.

Hans Helbaek, Ph.D., D.Sc.

From the ancient past to the more recent times. The Mediterraneans are a wide group. Sometimes called dark-whites or brunettes, with a sprinkling of fair ones: usually long headed; classed as generally wavy haired. As a rule not heavily built with middle sized jaws and usually not tall in comparison with

Northern people. A considerable number of the present day rising generation is somewhat taller.

In ancient times medicine men and sorcerers were also a sort of magicians who impressed with their attitude and spells and attempted to make sick impressionable people well. They also fashioned amulets to supposedly keep bad luck and illness at bay. The rites or methods they performed were almost charlatan, but their activities had a small element of relevance to modern medicine, for part of their lore was sometimes linked with nature in regard to the properties of some plants and animal poisons. The use, for example, of mandrake, which contains hyoscine as a saporific and of antidotes to snakebite goes back to the dim and very distant past, which in a way led to two developments in medical science: sedatives and vaccination.

A brief reference to death is opportune. Whatever the reason behind humanity's preoccupation with death, Peoples of civilisations before ours have delved in their subconscious to understand, and preserve life.

This does not apply only to us Catholics. For ancient Egyptians, death was shrouded in ritual. Their book of the Dead explains how all spirits are judged before the god of Osiris in a ritual whereby the dead person's heart was weighed against a feather representing the truth. The heart of a wicked man or of one who had been bad throughout life or very cruel or inhuman to others led to the dead person's soul to be devoured by a sort of monster from another sphere, while those who were good and lived a normal life passed the judgement and were granted eternal life.

The Hindus culture - religion also believes in an afterlife and a cyclical reincarnation of the soul which is reborn into a future that is based mainly on past life, thoughts and actions.

Recognition must be given that ancient people both in our Islands and elsewhere were not wholly ignorant of some very limited medical knowledge. It is surmised that over the ages, some medicine men (and sorcerers) in Mediterranean lands had discovered (?) how to treat a few diseases and ailments by prescribing concoctions in which some herbs which were considered to contain beneficial ingredients were utilized. These included olive oil, camomel, myrtle, garlic, lentisk, asphodel, fennel, thyme, lemon, poppies, aloes, quinine, coral weed, castor oil (dangerous to life), oil of cloves, dandelion, borage, gentian and thornapple, etc.

Leeches were extensively used to allay pain in swollen parts and to diminish congestion of blood in inflamed regions, reduce high blood pressure and fever. Examples of some herbs which were popularly used in our islands in the past include: An infusion of maidenhair fern (*tursin il-bir*) was used as a diuretic,

to help perspiration and to treat coughs and catarrh. The blue flowered 'fidloqqom' was also used - it was thought to reduce cough and fever. Mulberries were utilised as a mild purgative and roasted carob powder as a diarrhoea remedy. Camomile with its mild calming property was popular. An ancient remedy for minor wounds was honey or sugar, while dried and powdered myrtle was applied to minor cuts and grazes.

The *Fucus Coccineus Melitensis*: It is difficult for us today to understand the strong beliefs by rulers and people alike, between the 15th (possibly earlier) and the mid 19th centuries regarding the supposed potency of this plant. This is a parasite on a species of *Inula* and was collected from Hagret Il-General. It has a limited astringent property. It was considered of wide value and regarded as a remedy against haemorrhage, dysentery, certain stomach complaints, inflamed gums, and for those who spat blood (possibly tuberculous), certain ulcers, etc. It was also used by surgeons with a view to decrease bleeding following certain injuries, amputations and extraction of large carious teeth.

It seems that from an early time, Man noticed that blood was the essence of life and the heart was the centre of the circulation, but supposed that the circulation depended on breathing. Since ancient times, when attending to injured people, efforts were made to stem haemorrhage and lessen the loss of blood.

It is relevant to mention that among other aspects, the oldest instruments or tools were probably sharpened edges of flints, used to lance abscesses and let out pus, as well as for trephining skulls.

Some skill was involved in the treatment of fractures as proved by bones which had been unearthed and had healed - some becoming shorter but showing the callus where they had healed. A fracture when the skin was not broken, or a dislocation, had to be set by touch or guesswork combined. Smoothed pieces of branches or wooden splints held in place were used with success over the centuries.

In various countries skulls have been found on which the operation known as trepanning - the removal of a generally circular (not always) piece of skull with a view to relieve the brain from pressure or irritation was performed.

It is surmised that the Romans and the Greeks wanted and did to some extent improve medical practice, as the Hippocratic Oath indicates. To wander about some parts of the picturesque island of Cos in the Aegean is to experience a translation in time more realistic than any suggested by screen or stage.

A large plane tree still stands in one part of the Island, under which according to tradition, certain chosen altruistic young men were during a special ceremony introduced into the art of medicine, as long

ago as the beginning of the sixth century B.C. With their elders and teachers watching they took an oath which is now known as the Hippocratic Oath.

The significance of the oath is linked with the renowned medical authority of those times Hippocrates, also the author of some treatises which were meant to be a contribution to knowledge. Among other things, he showed how suffering could be alleviated not by any help from magic but by proved cures.

From the Hippocratic Oath.

"I swear by Apollo the healer, by Aesculapius, by health and all the powers of healing.... that I will use my power to help the sick to the best of my ability and Judgment".

Ancient Man and Trepanation

The human skull easily instils a feeling of apprehension. Even as through a glass misted by the ages, certain ancient skulls throw some light and reveal facts about antiquity and life. The lure of the past captures the imagination and entices research. Ancient Man had to struggle to survive. Health hazards must have been high, so was infant mortality. Men's minds turned this way and that, probing and ever hoping to find ways and means to making life easier and to alleviate suffering and disease. Often they groped in a fog of superstition and fantasy.

Trepanation on skulls was carried out in ancient times and later. Although limited only to some countries and not worldwide, how this vague conception became rooted in Men's minds is subject to conjecture. Before proceeding further, to the best of my knowledge, no ancient skulls showing trepanation were ever found in Malta and Gozo, notwithstanding that over the last two centuries or so, a large number of skulls were unearthed from various localities. No fewer than 648 Punic tombs were unearthed in Malta and 19 in Gozo. Many of them were empty but in others, the human remains that were found throw some light on the customs of the people in those times. The situation over the chronology is somewhat fluid.

The origin of trepanation is shrouded in mystery but interesting. It entailed a form of interference - a sort of crude surgical intervention with the skull and involved by means of crude tools, obviously when sterilisation was unknown - of the removal of roundels of bone from the brain case - an operation if it can be called so, deriving from the Greek word *trypanon*.

It is relevant to mention that scrapers of various types and shapes (not exactly related to trepanation)

which were used in everyday life, abounded in Neolithic work activities, as proved by finds in various countries. It is possible that sharp flint tools were utilised when trepanation was performed.

Indications that trepanation was practised in prehistoric times was noted briefly by Dr. Prunières as long ago as 1865. The technique varied. The holes were made usually, but not always, in the left half of the cranium, especially the forehead region. Sometimes a hole was simply bored; sometimes the same result was obtained by drilling a series of small holes or by scraping out a small circular furrow and then removing the enclosed portion of bone. How this difficult intervention or operation could have been performed perhaps with only sharp flint tools remains a mystery. As trephining went on during much later periods, it is likely or possible that some form of bronze instruments were utilised at other points in time during the Bronze Age. One cannot exclude the possibility that at a later time, some form of bronze or iron tools were used.

Trephined holes may be round or square and varied in size from tiny holes to openings up to about 5 cm (2in) in diameter. Skulls have been found which show that the individual had undergone the operation more than once.

To diverge, and not linked with trepanation, a brief reference to the evolutionary - developmental trend of the brain is being made. Man has been marked by one significant feature which attracts our attention: the very gradual expansion and elaboration over the ages, of the brain with its special functions. The growth of the human brain is one of the most marvellous of God's creations. It had an important influence on the development and ascent of Man, including abilities, skills, IQ and intelligence. It is mainly due to the brain that Man owes his present dominant position.

Trepanation can be traced far back in time to the Neolithic period, around 3000 B.C. from sites in the Near East, others not far from the Danube and later in France and Britain. However in the early sixties, there was a brief report in the press of the discovery of trepanned crania by Russian archeologists from near the Dnieper, believed to be older than previously recorded specimens, dating back to about 6000 B.C.

Dr D.R. Brothwell and his team who had carried out some enlightening excavations in Palestine, recorded the find of a trepanned cranium from the Palestinian Bronze Age of a later period.

Furthermore it is known that trepanation was also carried out in North West Africa, some parts of South Africa and Bolivia in past times. According to Dr Monique Losada, trepanation was still occasionally being carried out in a few South Sea Islands, up to the beginning of last century almost incredible!

The reasons why trepanation was undertaken as far back as the Neolithic period, possibly somewhat earlier, are obscure and not known and there is an element of conjecture. These perhaps include physical damage to the skull, e.g. a depressed fracture or to remove broken splinters of bones or sequestra. Prehistoric and other crania from Europe sometimes display defects caused by blows or weapons which can be detected from the condition of the bone edges. Moreover, where there is no indication of treatment of skull edge, it is surmised that it was strangely and sadly, sometimes carried out as a possible remedy (of course erroneously) for epilepsy, vertigo, trigeminal neuralgia, severe headaches, in violent mental patients or 'possession by devils'. Aside from these reasons, it is possible that it was performed for purposes of some ritual or magic.

There are indications that trephining after the death of the individual was also occasionally carried out, but this was probably merely for convenience in suspending the head possibly of a dead prominent person, a friend or of some redoubtable foe.

An unusual case concerns a very ancient child's skull, which was found some 70 years ago, shattered by overlying deposits in Magdalenian layers at the cave of Rochereil in the Dordogne in France. When reconstructed, it showed that it had been that of a child of about three years of age, with a roundheaded appearance when seen from the front. Detailed analysis indicated that it was of a grotesque head due to the condition known as hydrocephaly (water on the brain) which often creates psychological disturbances and leads to death at an early age.

It was noticed that there was an intervention on the upper part of the forehead where a circle of bone of about four and a half centimetres in diameter had been cut away. There is doubt whether the circle of bone had been cut while the child was alive or after death.

Water continued to flow in full measure beneath the bridge of history, nations rose and fell. Dr Paul Ghalioungui, the learned and affable Egyptian specialist whom I had the pleasure of meeting, recalled to the author that trepanation was on some occasions practised in ancient Egypt, although the dates when this was carried out are not clear. For example in one mummy (no. 1094) multiple low-density areas were noticed in the skull. In another mummy (no. 1578), a trephine hole with in addition signs of a past tumour of the maxilla can be noticed. This might have been the primary agent, responsible for the lesion that later necessitated trephining.

Dr Ghalioungui also told me that during a sandstorm in the Fayun Desert in the mid 1980's, a broken human skull showing partial trephining and part of a lower limb, came to light.

Some years later, not far from this area during the 1992 expedition to the Fayun Desert, fossils of the small leaf-insect creature named *Catopithecus* were found, dating back to millions of years. The area, now a dry desert was probably lush then and supported a variety of species and probably at one time a settlement of early Man. But this is another story beyond the confines of this paper.

And now to a different time horizon - the eighteenth century. The famous Maltese surgeon Michel Angelo



An example of an ancient trephined skull.

Grima (born 1730, died 1798) who for those times performed a high standard of surgery, trephined bones for example to let out pus in cases of osteomyelitis and on one occasion (perhaps more) on a mandible to let out pus from a large dental abscess. Furthermore, he resorted to trephining skulls in serious head injuries such as depressed fractures with a view to avoid a blood clot forming between the dura and the vault compressing or damaging brain tissue. He also resorted to trephining for internal hydrocephalus in those cases where closure of the sutures and fontanelles had occurred.

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I acknowledge with thanks valuable information from Dr Paul Ghalioungui.

Errata (December 2002 - issue No.23)

St James GP Group Practice - A success Story

Page 10, column 2, line 5:

add: "All the above points are incorporated in a legal contract signed by all partners".

Editorial text unfortunately switched by printers. The Editorial is from the December 2001 issue.

Errata (June 2002 - issue No. 22)

The opinion of Family Physicians on their working conditions...

Page 24

Author name's A. Uğur Bediz.

Errata (December 2001 - issue No. 21)

Perceptions of Residents' Working Conditions in Family Medicine.

Page 19, column 2, paragraph 3, line 3.

"Kmskal - Wall's (KW)" Should read "Chi-square". This should be repeated for all other references to "KW".