Medicine in ancient Cyprus

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In ancient times, Cyprus played an important role in the science of Medicine. This was largely due to its rich mineral deposits and its varied vegetation, both of which were primary sources for the preparation of medicaments. These attracted a number of well-known physicians who studied and, in the case of Galen in the second century AD, visited the island. The paper will present the results of a recently concluded, two-year research project that assembled all available information on the eponymous doctors of ancient Cyprus and the medicaments associated with the island. It also deals with all other evidence related to medicine and cure, such as ancient surgical instruments, the occurrence of healing deities, the use of ex-votos, the use of sympathetic/prophylactic magic, and other.

My research into medicine in ancient Cyprus, which started over 25 years ago (Michaelides, 1984), has recently been given extra impetus through an INTERREG IIIA programme, granted to the Universities of Crete and Cyprus, under the title “Greece-Cyprus: Joint Educational and Research Programmes in the History and Archaeology of Medicine, Palaeopathology and Palaeoradiation.” One of several aims of the project was a re-examination of the available information relating to medicine, healing and health in ancient Cyprus. This will lead to a lengthy publication (presently under preparation), where the evidence will be grouped under the following general headings: “Doctors and practitioners”, “Surgical and other instruments”, “Plant and mineral medicaments”, “Healing deities”, “Ex-votos”, “Magic”, “Baths and hygiene”, and “Skeletal remains and disease”. What follows is a short presentation of some of this information (see also Michaelides, 2006).

The important role that Cyprus played in the science of Medicine is due, largely, to the richness of the island’s vegetation and the abundance of its minerals, both of which were used for the preparation of medicaments since remote antiquity. Aristotle (Fr. VI. Ph. 266; Wallace and Orphanides, 1990:54–55), for example, mentions that...

...it was found on the island of Cyprus that there was a mountain larger and higher than all others, which was called Troodos, where there were many different kinds of plants useful for the art of medicine, and if I attempt to talk about each one individually, time will not be sufficient to tell everything...
Further on, in the same passage Aristotle mentions the mineral wealth of the area:

It has various mines of gold, and silver, and copper, and stypteria, split and white, and true stypteria. And sory and yeast of gold, and misy and khalkitis and other metals...

and most of these odd-sounding minerals, some of which will be examined later, are known to have been used in medicine.

The local tradition in the use of all these substances was certainly known to two of the most important scientists of all times: Pedanius Dioscorides (c. AD 40–90) and Galen of Pergamon (AD 129-c. 216) Dioscorides, the great Greek physician, pharmacologist and botanist, who practised in Rome and served as a physician in Nero’s army, mentions in his writings a large number of vegetal and mineral pharmaceutical substances from Cyprus, giving their medicinal properties. And it was certainly the fame of the mineral medicinal substances of the island that led Galen, one of the most famous doctors of all times, teacher, philosopher, pharmacist and chief doctor to the Emperor Marcus Aurelius, to visit Cyprus in AD166. Indeed, Galen mentions that he came to the island specifically for its medicines, and that he collected many substances from its mines, some with known pharmaceutical properties, and others with which to experiment. He also gives an enormous quantity of information on these minerals, recipes and instructions for their use in medicine, as well as a unique description of the ancient mines of Soloi (see, among other, De Antidotis: Kühn XIV:7; and De Temp. Fac. Med. 9: Kühn XII:171; 212; 219; 226; 229; 234; 238).

From ancient texts and inscriptions, we can cull the names of 19 doctors who were either Cypriot or practiced on the island. More candidates are often put forward but the evidence for them is rather insecure (Michaelides, 1988:233–34; Michaelides, 2006:17–22; Voskos, 2007; Michaelides, forthcoming). The most ancient of these doctors was Onasilos mentioned on the bronze tablet from Idalion, datable to c. 478–470 BC (Yon, 2004:60–61). The importance of this syllabic inscription (Fig. 1) is manifold and cannot be stressed enough. With regard to medicine, it is an agreement made by king Stasikypros and the demos of Idalion with Onasilos and his brothers, during the siege of their city by the Persians and the Kitians. In this, the doctor and his brothers

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Fig. 1: The Tablet of Idalion. Cabinet des Médailles, Paris (from Art antique de Chypre au Cabinet des Médailles. Exhibition Catalogue. Bibliothèque Nationale de France 1994, nos. 45a–b)
undertook to treat the casualties of the siege without receiving payment from the wounded themselves. Instead, the king and the *demos* would give them money or land and various privileges that they, as well as their descendants would enjoy.

The most well known amongst Cypriot doctors, however, were Apollonios of Kition and Zenon the Cypriot. The former, Apollonios, lived during the first century BC. He was a surgeon and a prolific writer, and one of the most important personalities of ancient Cyprus (Voskos, 2007:81–84, 96–253, 345–65, with illustrations and earlier bibliography). He studied with Zopirus in Alexandria and was a follower of the Empiric School of medicine. Of his many books only the *Περί ἀρθρῶν* (“On joints”) survives, a book dedicated to king Ptolemy of Cyprus (80–58 BC), brother of Ptolemy XII Auletes of Egypt. In fact, as stated in the book itself, it was king Ptolemy himself that had commissioned its writing. The work survives in a collection of manuscripts that once belonged to the ninth-century, Byzantine doctor Niketas, and it is accompanied by 30 illustrations based on the original illuminations of the text (Fig. 2). These demonstrate the different methods employed for the reduction of dislocated joints, performed by the doctor alone or aided by his assistants, using his bare hands or a variety of equipment. The *Περί ἀρθρῶν* is one of the oldest surviving commentaries on the work of Hippokrates and one of the first illustrated medical textbooks in the Classical world, and the work and its author remained famous for centuries, up to the Renaissance and beyond.

The second most famous Cypriot doctor was Zenon the Cypriot, a teacher and medical writer who lived in the fourth century AD (Voskos, 2007:86–87, 300–309, 666–86, with earlier bibliography). He worked in Alexandria where he became *archiatros* and founded a famous medical school from which graduated three of the most illustrious doctors of antiquity: Magnus of Antioch, Oreibasiaus of Pergamon and Ionikos of Sardeis. The letters sent to Zenon by Emperor Julian and the sophist philosopher and orator Libanius bear witness to the high esteem that the doctor enjoyed during his lifetime.

Much more numerous, of course, were the doctors whose names have been lost with the passage of time. One of them was a surgeon who lived during the late second century AD,

Fig. 2: “Reduction of the thigh”. Florence, Biblioteca Medicea Laurenziana, *plut.* LXXIV, 7 (from Voskos 2007, pl. XXIII)
and whose tomb was excavated in Paphos (Michaelides, 1984; 1988; 2006:23–26). Buried with the mortal remains of this doctor was a very well-equipped medical kit. Apart from several pottery and glass vessels and objects of stone and bone, there were 25 surgical instruments made of either bronze or iron or both. Since the importance of hygiene was understood in antiquity, surgical instruments, like these of Paphos, were usually made of bronze and were without wooden or bone handles, so that they could be quickly and thoroughly cleaned. Iron was used only for shears, the blades of scalpels and other such instruments, where a thin, sharp cutting edge was necessary, which, moreover, could be easily washed and, in the case of the scalpels, replaced when broken. For the same reasons of hygiene, some of the handles were covered with gold leaf (Fig. 3). Amongst the Paphos instruments, of special interest is a cylindrical étui made of bronze, which contained thin, fragile instruments, such as ear-scoops and probes (Fig. 4). The instrumentarium includes many of the standard instruments, such as iron sheers, a bronze bleeding cup (Fig. 5), and a set of iron bone levers of different size, and a variety of bronze probes. Much rarer is a double blunt

Fig. 3: Bronze double blunt hook with gilded handle. Surgeon’s Tomb. Paphos District Museum (photo A. Koutas)

Fig. 4: Cylindrical bronze étui containing six instruments. Surgeon’s Tomb. Paphos District Museum (photo A. Koutas)

Fig. 5: Bronze bleeding cup. Surgeon’s Tomb. Paphos District Museum (photo A. Koutas)
hook, which was used for cutting round and lifting blood vessels during operations (Fig. 3); while the rarest of all is a syringe-like object made of bronze. This is either a clyster or more likely, given its small size, a pyoulkos (Fig. 6), an instrument that could be put to many different uses but was primarily employed for cleaning and removing puss from wounds and orifices.

The use of another, equally important group of objects from Paphos is much more obscure. These are clay vessels (Fig. 7) with very thin walls that are shaped to fit onto different parts of the human body (Michaelidou-Nicolaou, 1988; Nicolaou, 1989; Michaelides, 2006:26–27, figs. 25–34). It is assumed that these are a kind of hot-water bottle that acted like the emplastra (plasters) and the thermasmata of the ancients, and filled with a warm liquid (probably olive oil), they were applied to the aching part of the body in order to cause hyperaemia and relieve pain. These vessels do not only look like the part of the body they are meant to treat; their underside is moulded to fit tightly on top of that particular part (Fig. 8). Examples of such vessels, datable to the first century BC/first century AD, have been found on many different locations in Paphos but are unknown elsewhere on the island. In fact, the Paphos vessels were considered unique in the ancient world, save for a rather worn example found off the coast of Chios and some later, rather crude examples lacking the anatomical details, mostly from Egypt. Recently, however, a very similar hot-water bottle in the shape of a foot was discovered in Rimini (Italy). It was found in a house that was destroyed by fire around the middle of the third century AD (Jackson, 2002; Jackson, 2003; Ortalli, 2007). This has been named the Casa del Chirurgo because it included what is believed to have been a kind of surgery and a large quantity of associated finds.
Amongst various pottery and glass vessels, there was also an incredibly high number of metal surgical instruments, about 150, several of which are similar to those from Paphos, which, together with the hot-water bottle, betray an undeniable relation between the equipment of the Rimini and the Paphos doctors.

The most important medical centres on the island during the Hellenistic and Roman periods appear to have been Nea Paphos and Kition (modern Paphos and Larnaca respectively). The former because it was the capital of the island, and the latter because, it is legitimate to assume, the adjacent salt-lake and the generally marshy nature of the area were the cause of many illnesses, malaria above all, which made the presence of good doctors imperative. The salt-lake, however, despite the problems it caused, also gave the precious salt that, as well as being a basic ingredient of daily diet, was also used in the preparation of medicaments, and the use of Cypriot salt as a medicament is specifically recommended by Dioscorides (Mat. Med. 5.109) and Pliny (HN 31.74,77,79).

Of the many mineral medicaments of Cyprus mentioned by ancient writers (Foster and Kanada, 1988; Michaelides, 2006:30–33; Constantinou, 2006), here I will refer to just two. Chalcopyrite (sulphide of copper and iron) was called misy by the ancients, and the use of Cypriot misy in medicine is discussed by, amongst others, Aristotle (Fr. VI. Ph. 266), Dioscorides (Mat. Med. 5.74.1–4; 5.100) and Pliny (HN 34.121). Pliny, in fact, characterises Cypriot misy as the best, while the quantities of misy that Galen collected from the mines of Soloi and took with him to Rome, were large enough to last him for the next thirty years of his medical practice (De Temp. Fac. Med. 9: Kühn XII:171; 226). Equally important was chalcanthos (see Galen, De Temp. Fac. Med. 9: Kühn XII:238), the hydrated copper sulphate or blue vitriol, which was also used in the making of ink. The tenth-century lexicon known as the Souda (s.v. χάλκανθος) describes chalcanthos thus: “It is water that solidifies in the mines of Cyprus, very strong, with generous styptic and calorific properties, which more than any other medicine can embalm and desiccate moist flesh” (author’s translation). Pliny describes the varied and wondrous medicinal properties of chalcanthos in a passage that is worth quoting extensively (NH 34.127–127; translation H. Rackham Loeb Classical Library. London: Heinemann, 1952):

...That which comes from Cyprus is most highly approved for medical employment. It is taken to remove intestinal worms, the dose being one dram mixed with honey. Diluted and injected as drops into the nostrils it clears the head, and likewise taken with honey or honey-water it purges the stomach. It is given as a medicine for roughness of the eyes, pain and mistiness in the eyes, and ulceration of the mouth. It stops bleeding from the nostrils, and also haemorrhoidal bleeding. Mixed with henbane seed it draws out splinters of broken bones; applied to the forehead with a swab it arrests running of the eyes; also used in plasters it is efficacious for cleansing wounds and gatherings of ulcers. A mere touch of a decoction of it removes swellings of the uvula, and it is laid with linseed on plasters used for relieving pains. The whitish part of it is preferred to the violet kinds for one purpose, that of being blown through tubes into the ears to relieve ear-trouble. Applied by itself as a liniment it heals wounds, but it leaves a discoloration in the scars. There has lately been discovered a plan of sprinkling it on the mouths of bears and lions in the arena, and its astringent action is so powerful that they are unable to bite.
It is of great interest then that in the already mentioned doctor’s tomb in Paphos, together with the surgical instruments there were several cylindrical containers (Fig. 9) filled with pills and powders made, precisely, of salts of copper (Foster and Kanada, 1988; Michaelides, 2006:33).

References to the pharmaceutical plants of Cyprus are very numerous indeed (Michaelides, 2006:35–39), but here I will talk about just three of them. Neither *Papaver somniferum*, nor the opium made from it, which was considered a great medicament in Antiquity, are anywhere mentioned in relation to Cyprus. It is generally accepted, however, that, at least during the Late Bronze Age (1600–1050 BC), Cyprus produced and exported opium. This has been substantiated by chemical analysis, but the most obvious proof is the large number of vessels of Base Ring Ware (Fig. 10), the shape of which bears an uncanny similarity to the capsule of the poppy (Koschel, 1966; Merrillees, 1979). The relatively large numbers of this type of pottery that have been found in the Eastern Mediterranean, witness the popularity of their content.

However, the most important medicinal plant of Cyprus was undoubtedly the *cistus*, the rock-rose (Fig. 11), from which the top-quality Cypriot λάδανον or labdanum was made. Pliny (NH 26.47) gives some information and the use of the substance for checking looseness of the bowels. Dioscorides describes the plant (λήδον), underlines the strong

Fig. 9: Cylindrical bronze boxes containing medicaments. Paphos District Museum (photo A. Koutas)

Fig. 10: Base-ring ware vessels. The Cyprus Museum, Nicosia (photo a: Department of Antiquities; b: A. Koutas)

Fig. 11: The rockrose, *Cistus creticus* L. (photo Pambos Christodoulou)
styptic powers of its leaves, and then describes the strange way in which ladanon was produced (Mat. Med. 1.97; Wallace and Orphanides, 1990:158):

...Female and male goats while grazing and eating its leaves take the fatty substance which easily sticks on their chins and legs, because it is sticky. After collecting it they strain it and keep it in the form of balls. Some others drag ropes on the bushes, and the fat that sticks on them is scraped off and made into balls. The best ladanon is fragrant, greenish, easily molded, oily, without sand and impurities and which looks like resin. The one which is produced in Cyprus is of this kind...

The method just described, involving the scraping off of the fatty substance, explains the Cypriot name for the plant, ξυσταρκά. For the ancients, ladanon was styptic, malactic, diuretic and anastomotic. Its fumes helped ailments of the womb, and, taken with other substances, prevented hair fall. It also played an important role in perfumery. Ladanon was still being produced and put into a variety of uses on the island until the first half of the twentieth century.

The rockrose is directly associated with another important medicinal plant. This is Cytinus hypocistis, a parasite that produces no chlorophyll and, as the name denotes, grows under the rockrose, on the roots of which it feeds (Fig. 12). The medicinal properties of this plant, which is very common on Cyprus, are extolled by several writers but not in relation to the island. It is mentioned here because during the Polish excavations of the Villa of Theseus in Nea Paphos, a pottery sherd was found bearing the legend “Υποχιστίδος χυλός” (Fig. 13), indicating that the pot originally contained a famous concoction prepared from the juice of this parasite (Borkowski and Łajtar, 1993). Hypocistis by itself or prepared with other medicines had many uses, especially for the treatment of haemorrhages and the healing of wounds and ulcers, particularly those of the genitals. It was also an important ingredient of medicines for the stomach and the digestive system.

Medicines and doctors, however, were not always enough, and the sick often relied on the help of the gods for their cure (Michaelides, 2006:40–43). Almost every god
could assume healing powers, like the goddess Astarte who, represented as a pregnant woman holding her breasts (Fig. 14) was particularly popular. Other gods, however, had a purely medical nature, and, amongst these, pride of place is naturally taken by Asklepios, the god of medicine, and his daughter Hygeia. Sanctuaries but mainly statues of both have been found in the main centres of the island (Fig. 15).

There are also sanctuaries where healing deities of unknown identity were worshipped. This is witnessed by terracotta figurines that portray acts, mainly childbirth (Fig. 16), for which the aid of the gods was always deemed necessary (Hermary, 1989:442–43, nos. 913–15; Vandenabeele, 1988; Vandervondelen, 1997; Michaelides, 2006:44–45). Such statuettes date mostly to the Archaic period, while in the later Hellenistic and Roman periods this tradition changed, and the faithful used to put in the sanctuaries ex-votos in the shape or with a depiction of the sick part of the body for the healing of which the help of the god was entreated (Pieridou, 1966; Metropoulou, 1985; Hermary, 1989:449–54, nos. 925–42; Hermary, 1990; Masson, 1998; Michaelides, 1966:45–49). One of the most common types were male genitals (Fig. 17), eyes, single

Fig. 14: Astarte-type statuette. The Cyprus Museum, Nicosia (photo A. Koutas)
Fig. 15: Marble statue of Asklepios from the Villa of Theseus, Paphos, Paphos District Museum (photo A. Koutas)
Fig. 16: Terracotta representing a scene of childbirth, from a cave/sanctuary in Lapethos. The Cyprus Museum, Nicosia (photo A. Koutas)
Fig. 17: Limestone ex-voto of unknown provenance, in the shape of male genitals. The Cyprus Museum, Nicosia (photo A. Koutas)
or in pairs (Fig. 18), and ears, some of which are inscribed in the syllabic script with the word κώφωσις (deafness), making their message to the god all the more explicit. These, of course, differ little from the bees-wax ex-votos that the faithful still hang in front of icons in the churches of Cyprus.

Where doctors and gods failed, the sick resorted to magic (Michaelides, 2006: 50–52) There is a very large number of amulets depicting symbols and monsters that protected against the “Evil Eye”, which the ancients considered one of the main causes of sickness. Abraxas (Fig. 19) and Gryllus are two such monstrous creatures that had general protective properties. Much more common were amulets in the shape of a clenched fist or male genitals. The phallus had apotropaic properties, and for this reason such amulets used to be carried for general protection from evil and disease. Some pendants were more specific, as an example made of hematite, which on one side depicts a deity in human form and a lion’s head, surrounded by various creatures including a scarab, a crocodile, a crab, a scorpion and a snake. On the back, there is the inscription “τ.αχεταδεχ.πεπτε”, a magic formula that aided the digestion of the wearer (Michaelides, 2006:52, fig. 103).

Lastly, we come to the very diseases that plagued the ancient Cypriots (Michaelides, 2006:57–57). During recent years, the available information on hereditary and other diseases has increased enormously, because of better excavation techniques, and new methods of analysis of the skeletal remains.
The leading role amongst hereditary diseases was clearly played by haemolytic anaemias, including most probably thalassaemia. The porotic hyperostosis (the overgrowth of the spongy marrow space) of the skull and the *cribra orbitalia* (the sieve-like lesion in the bony orbital roof) often evident on skeletal remains are generally accepted as indicators of such conditions. Skeletal remains also give a lot of information on non-hereditary diseases, the physical state and the diet of the deceased. Of particular interest in this respect is the skull of a man, who died at 30–35 years of age at Amathous, about 2700 years ago (Fig. 20). The clear marks left by infection on the mastoid process betray that this individual suffered from advanced otitis media. A relatively recent discovery is also worth mentioning. This is the skeleton of a woman who died around the age of 45, and was buried at Yeroskipou in the 5th century AD (Michaelides, 2008:51–52). The woman had very bad osteoporosis but the spine (Fig. 21) and in particular
the lesion on one of the thoracic vertebrae betray that she also suffered from Pott’s Disease, tuberculosis of the spine — a disease not hitherto archaeologically testified on Cyprus.

These and many other aspects of medicine, healing and health in ancient Cyprus will be analysed and discussed in greater detail in the forthcoming book on the subject.

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