Thermal springs in Europe

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Thermal springs and Thermalism from Ancient times until Today in Greece
Origin of Spa

THE WATER

The water is essential for human life: from the remotest times it has been considered vital for both sustenance and for the birth and development of civilisations. It was not long before man discovered its importance and beneficial properties: its ability to protect from diseases, as well as its healing and preventive properties. Multiple magical virtues were attributed to water, and it was even considered a true gift of the gods. Numerous myths and legends, considering the miraculous healing of the soul and body, were attributed to its mysterious powers. Man has always searched for health and wellness in water, which, throughout history, has often been loaded with symbolic and cultural values.

THE ORIGIN OF THE NAME “SPA”

Standard belief has it that the origin of the spa dates back to the Roman era, when troopers of their legions fatigued by wars, would take to rejuvenation, relaxation and treatment of sore wounds through water. Hot, natural spring water was considered to be the best cure for wounds and tired muscles. The legionnaires, hence, started building baths around naturally found hot water springs or hot water wells. These baths were popularly called 'aquae', while the treatments undertaken at these aquae were known as 'Sanus per Aquam' - of that SPA is taken into account to be an acronym - which means health by or through water. Others believe that spa is an ellipsis of the Latin phrase 'Sanitas per Aquas', meaning the same. The Belgian city Spa, which rose to fame in the 14th century in this context, thus got its name, since a thermal spring having curative and thermal properties was discovered there. Another accepted credence is that the word spa springs from the Walloon (the dialect of the people of Wallonia in south Belgium) word espa that means fountain. Alternatively, the origin of the word can conjointly be attributed to the Latin word 'spagere', which means to scatter, sprinkle or moisten.
HISTORY OF THE SPA

Since very early times many different cultures have enjoyed the benefits of soaking in hot water. Following is a summary of how the spa bath has developed into what we use today.

The most ancient populations like the Egyptians, Phoenicians, Hebrews and Israelites were used to immersing themselves in cold and hot water, and, of course, baths and ablutions were prescribed by religious laws in Oriental cultures. In the Pre-Hellenic civilization of the Aegean great use was made of baths. The buildings of Knossos, Festus and Tirinto, contain different types of bath chambers. In Italy, the Etruscans, facilitated by living in an area rich in springs, were one of the first to use water for healing purposes. A little for cleaning, a little for keeping themselves healthy and beautiful, they equipped the springs with thermal facilities, though never reaching the architectural perfection and splendor of the Romans. The baths, perfusions of healing water, were usually accompanied and enlivened by the sound of musical instruments.

The Greeks

Nevertheless, it was the Greeks, attracted by the strange phenomena of thermal springs that attempted to classify them and study their properties and effects on man. Herodotus was the first to establish the precise methods of balneotherapeutic practices, but it was Hippocrates, the most celebrated physician of antiquity, who dedicated a large section to the therapeutic properties of thermal water in his work “De aere, aquis at loci”. He analysed its chemical and organoleptic features, described the hygienic problems of using baths in various diseases and, in general, the effects of hot and cold baths on the human body.
It is widely known that as early as the 5th century BC the beneficial properties of the sulphurous springs were already known, especially for healing skin diseases and for relieving muscular and joint pain. In the Homeric poems and in Hesiod continuous references are made to the use of baths. After the difficulties encountered in battle or long journeys, heroes welcomed the coolness or wellness of a long restorative bath. Early Greek baths were constructed near naturally occurring hot springs or volcanoes, dating back to 500 B.C. Social gatherings often centered around these mineral and thermal baths. Some of Greece’s famous philosophers wrote of the benefits of hydrotherapy, including Hippocrates and Plato. The ancient Greeks believed in the therapeutic benefits of hot bath and mineral waters. They even indulged in the practice in bathing in the ocean for medicinal uses. Although largely reserved for the wealthy class, the concept soon came out to the public in the form of public baths whereupon they rapidly became worship centers for resident deities.

In Homeric times, bathing was primarily used for cleansing and hygienic purposes. By the time of Hippocrates (460-370 BC), bathing was considered more than a simple hygienic measure; it was healthy and beneficial for most diseases. Hippocrates proposed the hypothesis that the cause of all diseases lay in an imbalance of the bodily fluids. To regain the balance a change of habits and environment was advised, which included bathing, perspiration, walking, and massages. The baths were often combined with gymnastics and education, the precursors of the gymnasium.

The Greek cities had private and public baths, accessible on payment and attended by dawdlers and pleasure-seekers that spent entire days there. The facilities were very simple: they consisted of an area allocated to a hot bath with a slave who poured water and another chamber for unction and massage.

**Baths and Bathing**

Hot bathing was considered an extremely healthy and refreshing experience antiquity. Athenaeus wrote at the end of the 2nd century, reports with admiration that Homer's Heroes were all familiar with bathing, as well as with the use of olive oil for the treatment of their body. The history of bathing in ancient Greece begins from the place of the so called *Gymnasium*. By incorporating full washing bathing facilities into its regular program, Gymnasium created the social and architectural context for one of the earliest forms of communal bathing in ancient society and exerted a formative influence in the subsequent development of baths.
**Bathing installations in the Gymnasium**

In ancient Gymnasium the *loutron*, was the only space related to washing and bathing. It was an open space, where bathing took place with the use of cold water, through elevated basins or simple shower arrangements. From the second half of the 6th century and on the representations of washing and bathing of men and women become enough frequent on vase paintings. Some of these can indeed be recognized as depictions of scenes of bathing in the palaestra.

The use of bathing installations in the palaestra was for the athletes and those that visited the Gymnasium. By the 5th century however public baths were developed in urban center and in sanctuaries, the so called Valaneia.

Even if dating is difficult to be precise, roofed bathing installations in ancient Greece were developed early in the Gymnasium. The recognition of baths inside the palaestra is relatively easy during the Hellenistic period. Through the excavations a system for supplying water has come to light, often connected with raised basins or bathtubs manufactured from limestone or marble. According to Vitruvius baths were placed in a protected position in one of the corners of the building. Despite the fact that hot water could remove the oil, the dust or the mud from the bodies of the athletes more easily, no mechanisms of hot water supply have come to light through the excavations in ancient Greek Gymnasia until the Classical Period. On the contrary spaces that were heated with simple means existed in many cases, such as places with portable braziers, where massage with oils probably took place. During the Hellenistic period the renovation of Gymnasia to include facilities for hot bathing spread across the eastern Mediterranean.
The Greek baths.

Construction and Architecture of most Ancient Greek baths

Most ancient baths were simple manufactures constructed of mud brick with a limited use of baked brick, limestone and stucco. The plan of Greek bath shows a simplicity and functionalism, whether for practical cleaning or for ritualistic purposes, it is characterized by rectangular or irregularly shaped units clustered around one or more circular chambers. From the beginning until the latest years, Greek public baths were shaped with no strict succession of their spaces, as well as with no strict corresponding use of these spaces. The complex ground plan of baths, based on the beginnings of the alternation of temperature, constitutes an invention and a development which belongs to the Roman Period. In Greek baths only the dome, the *tholos*, corresponded to certain bathing operations. This round booth, constituted the characteristic architectural element of ancient Greek baths, enclosing the greatest possible space within the smallest perimeter, giving a sense of unity and organization to the plan. The circular rooms were reserved primarily for hot bathing. In the older establishments they were heated by the steams of the hot water or by braziers or by simpler forms of floor heating in the later ones. Usually individual basins for absolute immersion or half bathtubs, the so called *pyeloi*, were placed side by side along the wall of a rectangular room or around the periphery of a circular one. The hip baths were made like individual niches, or booths, carved into the rock, or were built up from brick or mortar. The covered sides protected the bather against being splashed with water from his neighbors. The heating systems of Greek baths were extremely simple until the 1st century B.C. A mechanical method of heating the bathing room did not exist in the majority of the early examples. The steam from the hot bathwater or the heat from a charcoal brazier would be sufficient enough in order to heat the low, small and without windows spaces for bathing purposes. Another way of heating was with the use of a dual purpose stove that boiled the water and heated the adjacent chamber either by direct convection or by a simple method of circulating the hot gases behind the wall. The baths of the mid-4th century in Olympia used a furnace boiler which was located in the outdoor service area, between the two rectangular bathing halls. The furnace was stocked from the outside, while the boiler embedded in the thickness of the wall, supplied hot water directly to the new bathing unit which contained the hip baths.

History and habits of the baths in ancient Greece

Bathing was a practice familiar to the Greeks of both sexes from the earliest times, both in fresh water and salt. Thus, Nausicaa, daughter of Alcinous, king of Phaeacia, goes out with her attendants to wash her clothes; and after the task is done she bathes herself in the river (Od.vi. 58 Od., 65). Odysseus, who is conducted to the same spot, strips and takes a bath, while Nausicaa and her servants stand aside. Warm springs were also resorted to for the purpose of bathing.
The Ἡράκλεια λουτρά shown by Hephaestus or Athena to Heracles are celebrated by the poets. Pindar speaks of the hot baths of the nymphs, and Homer (Il.xxii.149) celebrates one of the streams of the Scamander for its warm temperature. Bathing in rivers or the sea (ψυχρολουτεῖν) was always common for the young. Not to know how to read and to swim were proverbial marks of the ignoramus. A plunge in the Eurotas always sufficed for the Lacedaemonians (Schol. on Thuc.ii.36). There appears to have been a swimming-bath (κολυμβήθρα) at Athens in the time of Plato (Rep.453D).

The artificial warm bath was taken in a vessel called sexes from the earliest times, both in fresh water and salt. Thus, Nausicaa, daughter of Alcinous, king of Phaeacia, goes out with her attendants to wash her clothes; and her jewelry (Od.iv.128) was of silver. It would appear from the description of the bath administered to Odysseus in the palace of Circe, that this vessel did not contain water itself, but was only used for the bather to sit in while the warm water was poured over him, which was heated in a large caldron or tripod, under which the fire was placed, and when sufficiently warmed was taken out in other vessels and poured over the head and shoulders of the person who sat in the ἀσάμινθος. Where cleanliness merely was the object sought, cold bathing was adopted, which was considered as most bracing to the nerves; but after violent bodily exertion or fatigue warm water was made use of, in order to refresh the body and relax the over-tension of the muscles. Hesiod (Op.754) protests against men elaborately cleaning (φαιδρύνεσθαι) their bodies with effeminate baths Op., i.e. those of high temperature, which shows that this luxury had begun in his day; and in Homer's time constant indulgence in the warm bath was considered as a mark of luxury and effeminacy (Od.viii.249). The use of the warm bath was preceded by bathing in cold water (Il.x.576). The later custom of plunging into cold water after the warm bath mentioned by Aristides (vol. i. Orat.2, Sacr. Serm. p.515), who wrote in the second century of our era, was no doubt borrowed from the Romans.

After bathing both sexes anointed themselves with oil, in order that the skin might not be left harsh and rough, especially after warm water. The use of precious unguents (μύρα) was unknown at that early period. In the heroic ages, as well as in later times, refreshments were usually taken after the bath (Od.vi.97).

At Athens the frequent use of the public baths was regarded by strict moralists in the time of Socrates and Demosthenes as a mark of luxury and effeminacy; thus it is a sign of demoralization on the part of a ship's crew. Accordingly Phocion was said to have never bathed in a public bath, and Socrates to have made use of it very seldom.
It was, however, only the warm baths to which objection was made, and which in ancient times were not allowed to be built within the city (Athen. i. 18 b); for the Greeks did not at all approve of people being dirty; only cleanliness, they thought, should be attained by the use of cold water.

The baths (βαλανεῖα) were either public (δημόσια, δημοσιεύοντα) or private (ἰδία, ἱδιωτικά). The former were the property of the state, but the latter were built by private individuals. Such private baths are mentioned by Plutarch (Demetr.24). Baths of this kind were probably mostly intended for the exclusive use of the persons to whom they belonged (Ps. Xen. Rep. Ath.ii. 10.) There appears to have been a small, almost nominal, charge for the use of the public baths. Thus, in the inscription of Andania (i. 107), the price is fixed at two chalke=1/4 obol.

We know very little of the baths of the Athenians during the republican period; for the account of Lucian in his Hippias relates to baths constructed after the Roman model. On ancient vases on which persons are represented bathing we seldom find anything corresponding to a modern bath in which persons can stand or sit; but there is always a round or oval basin (λουτήρ or λουτήριον), resting on a stand (ὑπόστατον), by the side of which those who are bathing are represented standing undressed and washing themselves.

But besides the basins (λουτήρες and λουτήρια) there were also vessels for bathing, large enough for persons to sit in, which, as stated above, are called: ἀσάμυθοι by Homer and πύελοι or μάκτραι by the later Greeks. The λουτήρ thus, as we shall see, corresponded to the Roman labrum; the πύελος to the solium or alveus.

**Ancient Bath Vessels in Thesprotia**

In the baths there was also a kind of sudorific or vapour bath called πυρία or πυριατήριον, which is mentioned as early as the time of Herodotus (iv. 75). Among the chambers of the Greek bathing establishment was the ἀλειπτήριον, Lat. unctorium. Lucian (Hipp.p. 73) speaks of the ἄποδυτήριον with its ἰματοφυλακοῦντες (capsarii); but as they seem to be unknown to Aristotle, they were probably introduced from Rome. Hence Aristotle tells us that those who stole clothes from the baths were punishable with death. As the baths most frequently adjoined the gymnasia and palaestra, one of the rooms of these latter buildings served the purpose of undressing-room (Ps. Xen. Rep. Ath.ii. 10). About these rooms the τριβαλλοί (trivali) used to loaf, looking out for an invitation. We hear of wrestling and playing the cottabus, besides a great deal of conversation going on in the baths. To sing there was considered the part of a boor (Theophr. Char.4).
Either the bath or simple anointing of the body generally formed part of the business of dressing for dinner. It was generally taken shortly before the δείπνον, or principal meal of the day. Epictetus (Diss. i. 1, 29) mentions noon as the hour, while voluptuaries bathed repeatedly. It was the practice to take first a warm or vapour, and afterwards a cold bath, though in the time of Homer the cold bath appears to have been taken first and the warm afterwards. The cold water was usually poured on the back or shoulders of the bathers by the βαλανεύς or his assistants, who are called παραχύται. The vessel from which the water was poured was called ύδρια; there is mention also of the ἁρύταινα, which must have been much smaller.

Bathing establishments for women existed among the Greeks, whether belonging to the state or maintained by private enterprise. We learn from Varro (L. l. ix. 68) that the earliest Greek balneum in Rome contained a department for women.

Roulez (Choix de Vases peints du Musée de Leyde, pl. xix. 1) gives us a vase painting of a bath in a palaestra, where two shower baths descend on men from spouts shaped like panthers’ heads; and Panofka (Bilder antiken Lebens, pl. xviii. 9) shows us a bath for women similarly arranged, while an unpublished vase painting in the Louvre represents a κολυμβήθρα, or swimming-bath for women.
The persons who bathed probably brought with them strigils, oil, and towels, or had them carried by a slave. The strigil, which was called by the Greeks στλεγγίς or ξύστρα, was usually made of iron, but sometimes also of other materials. Pollux says (x. 181), “The cloth which is worn by women round their loins when taking the bath, or by the men who bathe them, is called ὢα λουτρίς.” The Greeks also used different materials for cleansing or washing themselves in the bath, to which the general name of ῥύμμα was given, and which were supplied by the βαλανεύς. This ῥύμμα usually consisted of lye made of lime or wood-ashes (κονία), of nitrum, and of fuller's earth (γῆ κιμωλία, Ran. 710 and Schol.; Plato Rep.iv. 430A)
Among the Greeks a person was always bathed at birth, marriage, and after death; whence it is said of the Dardanians, an Illyrian people, that they bathe only thrice in their lives—at birth, marriage, and after death. The water in which the bride was bathed at Athens was taken from the fountain of Callirrhœ, which was called from the time of Pisistratus Ἐννεάκρουνος (eneacrounos). The natural warm springs (θερμὰ or Ἡράκλεια λουτρά) were not only esteemed as sacred to Heracles, but also considered highly medicinal. The hot springs of Aedepsus in Euboea were famed for their healing properties, as also was a cold spring, which flowed for a time (Athen. iii. 73). In later times it became a great resort for pleasure as well as health, especially in the spring.

**Edipsos thermal springs, north Euboea, Greece**

The thermal springs of North Euboea are located near the city of Edipsos. Edipsos has been well known for the healing attributes of its thermal waters since ancient times, as Strabo, Pausanias, Aristotle and others recognised and described this. The famous Edipsos baths have been developed along the shoreline in a slightly inclined surface, while a short distance to the west lays Telethrio Mountain and Edipsos plain. According to the local population, these springs are said to be effective in curing diseases such as rheumatoid and inflammatory arthritis, degenerative arthritis, spondylo-arthritis, myalgia, neuralgia, lumbago, neuritis, backaches, tendonitis, vessel diseases, diseases of the endocrine cycle and post traumatic inflammation.

**Therma thermal springs, in the island of Ikaria Greece**

Today there are vestiges that still remain of Greek hydrotherapy, The Ancient Spa of Therma in Ikaria: The island of Ikaria has an abundance of the highly therapeutic radio-energized springs. They are regarded as the best in the world. Historically Therma in Ikaria has been a very popular place particularly for hydrotherapy ever since the 4th century BC.
There are basically 3 main therapeutic springs in Therma. The hot springs have curative properties and can heal a variety of illness like rheumatism, arthrology, arthritis, neuralgia as well as infertility.

Therma derives its name from the pre-historic town of Thermae. In the past, the residents of Thermae were popularly referred to as "Asclipians" after the name of "Asclipios" who happened to be the god of medicine. There is the "Xalasmena Therma" which is located in close proximity to the Therma town where even today one can see the vestiges of the ancient spa.

In the past, it used to be a seaside town innovatively built on a small cape and was one of the most popular spas. The remains of wrecked marble bathtubs along with a pre-historic aqueduct that have been unearthed from this area bear ample testimony of the place's popularity in the ancient times.
The Romans

In 25 B.C. the Romans expanded on the use of mineral and thermal baths as social experiences. They constructed the first large-scale spa to be used by hundreds of bathers. Elaborate aqueduct systems carried mineral waters to private stone tubs, steam rooms and public bathing areas. The largest of all Roman baths was the Diocletian. It was completed in A.D. 305 and covered an area of 130,000 sq. yards! Many of these spa resorts were destroyed during the fall of the Roman Empire.

Most have probably heard of the proverbial "Roman Bath Tub", basically, a large tub in the newer and more expensive homes. Though, this term is not without its history.

Taking the lead from the Greeks, Romans embraced bathing as a regular regiment for health. However, Romans considered the baths more important than the gymnastics alone. Besides cleansing, exercises, socializing, relaxation, and worship, medical treatment was also applied extensively. Now as opposed to the Greeks who used Spas as a practice following intense Gymnastics, the Roman Spas also had a medicinal emphasis and were used largely as recuperation centers for the wounded military soldiers.
However, recuperative also included therapeutic centers for the healthy soldiers as well. Water applications to the ailing body were a general practice among the physicians in the ancient world. Spa treatment consisted of application of water to afflicted parts of the body, immersion of the whole body in the water (especially for rheumatic and urogenital diseases), and drinking excessive quantities of water.

In Rome, there were primarily three types of baths. There were baths at home (balnea), private baths (balnea privata), and public baths (balnea publica) that were run by the state. With the advent of the aqueducts, the concept of the "public bath" exploded to glorious edifices (thermae) with a capacity for thousands of people. The consumption of water leaped during this period, from roughly 12 liters to 1400 liters of water per person per day, mainly for bathing. The practice was so engrained that the Roman legions, during their long occupations in foreign lands, built their own baths at mineral and thermal springs in the newly conquered lands. Examples are found all over Europe.

Although as everyone knows, the therapeutic and hygienic practices of the Roman public bath slowly lost ground to the social and gatherings of ill repute as the Roman morality went on the decline in the later years. The fall of the Roman Empire resulted in a huge decrease in the recognition of the thermal springs concept all over the globe. All existing spas fell prey to the cyclic order of being discovered, forgotten, and then being rediscovered. But though spas and hot water treatments have been out and in of vogue since man initial stumbled over the concept, water as a healing liquid never lost its sheen.

Decline of the Roman Empire, middle ages and the Byzantines.

Following the demise of the Roman Empire and the turbulent barbaric invasions, the ancient and sumptuous thermal facilities began to be deserted, also due to the spread of a Christian culture that was contrary to forms of nudity and promiscuity. Nevertheless, the bath was still accepted as a simple cleaning process. But the profound change in living conditions, alongside the general impoverishment of the populations and with the ruin of the aqueducts, led to the desertion and progressive ruin of the thermal baths. On the other hand, the ancient social and hedonistic value of the bath was banished during the Middle Ages, from the medical point of view the mechanisms of the power of the various types of water were investigated, by studying the relevant specific effects: sulphurous water, for example, was recommended for skin diseases, while the salsobromioiodic water was recommended for female sterility. In the High Middle Ages, although the habit of bathing was not entirely lost, any places suitable for this purpose were built only for the benefit of the upper classes. But with the revival of city life, starting from the 11th century, bathing facilities began to be built again in a number of German, Spanish and French cities. In Italy, many of these facilities were restored or renewed close to thermal springs already exploited in the past (Bagni di Lucca, Viterbo, Acqui, etc.) ; there are many testimonies of real instances which allow sick people to heal themselves at the Baths of Bormio and Baja ; news of refurbishment and reconstruction at Abano.
In Acqui, Piedmont, from the 15th century there is news of a “mud factory” which, at the time, was rebuilt by the Town Hall.

A sure contribution to the spread of the use of baths again in the Western World was the resumption of internal and regular relations with the East because, in these areas, the thermal tradition never died out, but rather was kept alive thanks to the lavish generosity of a number of Byzantine emperors such as Justinian. Refined examples of this kind remain in Spain but above all in Sicily as in Sciacca and Acireale.

The 19th and 20th Centuries in Europe

Bath, England, has been a popular spa destination since the Romans founded Britain’s only hot water springs. The main spring bubbles out almost one million liters of 49 degree water each day! Scientific studies have revealed over 40 different minerals in the water, surprisingly including a slightly radioactive background reading! The Belgian town of Spa was named after its hot wells and baths, renowned throughout Europe in the 14th century, and still in existence today. Spa has been frequented as a watering-place since as early as the 14th century. The oldest known mineral bath still in operation today is in Merano, Italy where there is evidence of organised use of the spring dating back 5000 years. In Ireland, soaking in a tub with seaweed has been popular since Edwardian times for its health benefits. It is now experiencing resurgence in popularity.

Around 1800 interest in the bathing began to be in vogue again, and attempts to further analyse the mineral benefits. However, the motivation was largely medicinal again. Doctors were convinced that for each disease there was an appropriate medicinal spring, which could be discovered through chemical analysis of the waters. Two main protagonists of the methodical application of hydrotherapy are Vincent Priessnitz, a peasant farmer in Gräfenberg, a German speaking town that is now part of the Czech Republic, who, in around 1829, revived it, popularizing it once more and Fr. Sebastian Kneipp, a Bavarian priest, further developed the principles of balneotherapy (medicinal use of thermal water) and hydrotherapy (immersion of the body in thermal water for therapeutic purposes). Individual treatments were prescribed, based on the composition and temperature of the water. Also, combinations of treatments were developed consisting of hot and cold baths, herbal baths, mud packs, active physical exercises, massages, and diets. Kneipp advocated a holistic approach to the treatment of a disease. In contrast with the spa resorts, which aimed at the elite, Kneipp directed his attentions to the common man.

Throughout Europe and the Americas the public Spas were on the rise. They were integral parts of gentilian life. Every spa resort had its own theatre, casino, and promenades besides the bathing buildings. In Germany, Austria, and Belgium much importance was attached to ostentation. Grand hotels arose with casinos and dancing establishments surrounding the spa resorts. The spa resorts became not only a meeting center for the elite but also a place of creativity for painters, writers, and composers. The baths were again crowded.
Baden-Baden (Germany) became the most glamorous resort in continental Europe. It was the place to see and to be seen. However, in Britain use of the spa declined. The English spa resorts were run by amateurs, and the medical hydrology was poorly organised. The resorts aimed more at pleasure, rather than medical treatment, and were exploited by estate developers with commercial interests. Competition from seaside and foreign resorts, and an economic depression in the 1930s led to a further decline. Eventually, spa therapy was excluded from the National Health Service, which meant that many spa resorts in Britain closed down. With innovations in the medical science, allopathy took over nearly every alternative branch of medication and wellbeing in the early 20th century. Dispensaries and public hospitals started to be viewed as an alternate to natural healing processes. This threw the prevailing spas out of drugs as they got reworked into vacationing hubs, losing their original purpose and catering solely to the rich. Alternative spas responded by concentrating on the beauty business giving an amalgam of fitness and beauty in glorified saloons called day spas.

The second half of the Twentieth century brought a further development in hydrotherapy. After two World Wars, changes to the social fabric and to the political aspects of the various nations, the popularity of the thermal baths again decreased. The destruction of the baths reduced to ruins, the difficulty of revival, the progress of chemistry and pharmacology have radically changed the way of taking “baths”. Elitist hydrotherapy has given way to a social form of hydrotherapy, open to a decidedly larger public, with the addition of thermal cures in the therapeutic program of the national health system. No longer fashion, no longer elegance and ostentation of one’s “status”, but the right to care for all. Until the end of the last century the thermal facilities experienced a period of evolution and transformation, which have led them to a healthy identity crisis. The early years of the IIle millennium have brought Italian hydrotherapy back into the limelight; water has regained the importance due to it in the therapeutic experience of the physician, through studies of hydrology, pharmacology and biochemistry. Scientific rigour together with thermal intervention has assumed a preventive, therapeutic and rehabilitative significance in numerous human pathologies. The concept of cure is joined to the concept of wellness, with an extraordinary flourish of parallel and complementary activities. Consequently, thermal facilities have reconverted and welcome numerous visitors each year. However, the firm point is, and remains, the effectiveness of the treatment using mineral water. Crenotherapy is strictly part of medicine; continuous progress in the medical field, in pharmacology and surgery, does not blur the value of prevention and thermal care.
GREEK SPA TODAY

Greece is one of the few countries in the world, along with Morocco and India, to be gifted with natural resources such as plants and herbs that cure. Kozani, in North of Greece, is known for saffron cultivation, the only such place in all of Europe. Greece is the country of olive oil, of wheat and wine, the Mediterranean trilogy, each of them with a tremendous lot of applications in cosmetics. Greece is the country where chamomile, sage, lavender, and mint grow in abundance. Among all the wonders of Greek nature are the springs, thermal waters and the sea itself, the Mediterranean. Euripides once wrote a piece about the curing virtues of thermal and sea waters. Spring waters in Greece have been around since highest antiquity and many were considered sacred and gave way to construction of temples, like in Delphi, the Castalia spring and in Vravrona. Since the spa is the temple of the 21st century, it is only natural that thalassotherapy complexes and thermal spas are built today in exceptionally gifted places. The Thermae Sylla of Aedipsos and Loutraki Municipal Thermal Spa, are two striking examples of the best use that Greece can make of its natural resources.
Bathtub in Thieve

Bathtub in ancient Crete
Representation of ancient baths from pottery
Ancient baths in Thessaloniki in ancient Agora

Woman cleaning himself in public baths
Thermalism
Medical Considerations and Application

GREEK THERMAL

Apart from the rare landscapes and special natural beauties, nature also endowed Greece with important therapeutic properties. Bath spas are part of the country’s national wealth, while their therapeutic properties were already known in ancient times. Natural mineral resources are scattered all over the country; while the water of these differs from common water, either due to the high temperature or to the presence of rare drastic components. The water of these is marked as mineral water, because of the temperature or the general chemical composition. Apart from cold mineral, there are also hot and these are the ones used in therapeutic treatment: bath spa hydrotherapy (thermalism).

The geographic allocation of the springs is not accidental as it is connected either with tectonic events, as is the case for example of Kaifa, Kyllini and Langada, or with volcanic activities, as in the case of Methana, Milos, Lesbos, Samothrace, and Limnos.

HISTORY OF THERMALISM IN GREECE

The history of thermal is from ancient Greece. The first observer of those with therapeutic properties was the historian Herodotus (484-410 b.c.). He described some spas and suggested, playing the role of doctor, health cures take place in certain seasons and for 21 consecutive days.

Hippocrates of Kos (460-375 B.C.) who is considered to be the instigator of medical science and father of hydrotherapy, dealt with the various natural waters, found in marshes and ponds, formed by the rain and into those that emerge from metallic rocks. These are warm, containing iron, copper, silver, gold, sulfur and other metal elements.

Apart from various well-known references in the Bible, during the Roman era and the Byzantine times many doctors dealt with hydrotherapy and Thermalism health cures. Such were the Herophilos, Erasistratos, Asklipiadis, Agathinos, Galen, Orebasios, Paul the Aiginitis etc.
All of these doctors agreed with the thermalism effect of natural springs. A student of Agathinou, wrote, in the 1st Century AD., about the therapeutic properties of hot sources and said that it is not possible to determine precisely the way each of the sources separately, develop their therapeutic properties, because they require long-term observations and experiments. That continues today.

The Roman baths are known throughout Europe as examples of architecture. Thermalism health cures find more widespread application in two centuries. In many countries of Europe (Germany, Austria, France, Italy, Hungary, Czech Republic and Slovakia) new therapeutic baths were built which replaced the old Roman Albano. After the 2nd World War improvements were made even in new institutions which operated in line with modern medical views on the value of the Spa for bathing.

Chemical analyses of water sources began in free Greece when Kapodistrias arrived. The official organization of the spas happened at the beginning of 20th century. In 1918 a special service has set up for the first time in the hot sources from Ministry of the economy.

What is the water of natural springs?
The waters of natural water springs or whirlpools is emanate through rocks that come out of the Earth’s core.

Are mineral waters containing dissolved mineral ingredients—such as sodium, potassium, calcium, magnesium, iron, iodine, radium, phosphorus and sulphur—or gases like carbon dioxide, hydrogen sulphide, nitrogen, oxygen and hydrogen. The waters are not equal degree of acidity and there are acid or alkaline, or neutral. The temperatures vary but have an average of 60° C. There are springs that may contain a higher level of one or two substances and others that may contain a lower level.

NATURAL THERMAL SPRINGS IN GREECE

The Greece is one of the richest countries in natural resources. Source waters are in our country from 752 different geographical points. Most sources are located on islands, 229, mainland Greece with 156 sources, Macedonia with 115, Peloponnese with 114, Thessaly with 57, Epirus with 56 and Thrace with 25.

Of these thermal spas officially operate as thermal towns 80. Some of them are privately owned and some owned by municipalities. The rest does not work because they have deficiencies in infrastructure.
MEDICAL HYDROLOGY- SPA THERAPY

The treatment of various diseases and particularly rheumatic disease is achieved with medication and physiotherapy. In some severe forms surgical orthopedics surgery is needed or even a combination of all three basic forms of therapy as the case may be. Hydrotherapy is a part of physiotherapy and is a well-organized form of treatment. Hydrotherapy under the general concept is: SPA THERAPY or MEDICAL HYDROLOGY and includes the following forms:

**Hydrotherapy** is particularly important for the treatment of multiple affections such as arthritis and rheumatic diseases, and falls into two categories:

**Internal therapy**, which includes:

- **Consumable therapy** (drinking of natural mineral waters),
- **Inhalation therapy** (inhalation of fumes or droplets of mineral water)
- **Rinse therapy** (oral, nasal, gynecological)

**External therapy**, which includes:

- **Baths, jet showers** (the body is hit by thermal mineral water under high or low pressure for a specific period of time),
- **Hydromassaging**. (the pressure of the water massages the body),
- **Hydrokinesotherapy**. (combination of balneotherapy and kinesotherapy for the period of time the body is inside the water)
- **Mudtherapy**. (Application of mud, which has “ripened”, on those parts of the body that suffers from various disorders).

The health cures commonly based on the following main springs water attributes:

**In thermal stimulus**

**In mechanical stimulus**.

**In the effect of natural-chemical constituents of that spring water includes**

The Thermal Stimulus is important in health cures and constitutes an essential form of thermotherapy. For a thermal stimulus the temperature of water should be greater than 34o C.

The Thermal agent acts in several ways. These are: the dimension of the blood vessels, hyperemia, local perspiration, muscle relaxation improving metabolism and analgesia. At temperatures between 38 and 40 ° c. muscles are heated, their resistance is decreased and after relaxation, pain is relieve and movements are facilitated.

With regard to mechanical factors, the effect of laws based on the Archimedes theory referred to in the hydrostatic pressure. In water the body becomes lighter, movements become easier, the muscles relax, absorb the bumps and inflammations and have a positive effect on psyche.
A very important component of the thermal water is the element sulfur in the form of sulphate radicals. These sulfate radicals entering through the skin into the body and enrich the contents of joints, bone marrow and blood. In our body there are a lot of trace elements that help chemical reaction and involved in protein production. These trace elements are found in many springs waters. One of these is radon, which has the ability to penetrate the body through inhalation, through thermal baths and mud baths. The mineral hot springs have redox properties, and scientists believe it is important in the balancing of physical equilibrium.

**In conclusion**
The therapeutic effect of the chemical factors of mineral water, knowledge which has come from ancient times, is now given a scientific basis. The effect of mineral water based on the three factors: chemical, thermal and mechanical in reaction to rheumatic diseases is thus pain relief, inflammatory reduction, improvement of joint movement and flexibility. Mineral water, depending on its chemical components, can have diuretic and cleansing properties such as bronchial dilation. Thus, as a result it can be used as a consumable therapy and inhalation therapy.
**General rules of thermalism**

From the above properties of thermalism we understand that curative treatment in spas is not a simple case. We follow strict rules of application and only the doctor must give the approval. The general rules are:

1. Before the start of treatment we must examine the existence of other diseases so that treatment can be modified.
2. We studied the rheumatic diseases and as will be determined by the duration, temperature, type of treatment (bathroom, showers, hydromassaging, steam, mudhydrokinesotherapy) and the area of application (neck, waist, shoulder, Hand, hip, knee, etc.)
3. The doctor examines whether the patient who is following the treatment should be stopped.
4. There is monitoring of treatment in the middle and at the end. In the end, the doctor will give advice on treatment outcomes.
5. Depending on the type of treatment, it can last for a few minutes to an hour.

The beneficial effect usually comes a few weeks after the end of the Thermal spa but often during the treatment. Physiotherapy can be added during treatment. At the end of the treatment, the doctor gives a general estimation of the patient’s physical condition and progress.
Therapeutic indication of Thermalism

They are a large number of diseases in which can be used thermal treatment. Some of them are:

1. **Indications of external therapy**
   - Rheumatic diseases
   - Diseases of the circulatory system
   - Skin Diseases
   - Syndromes of neurovascular disorders of the system
   - Peripheral Nerve Diseases
   - Gynecological disorders

2. **Indications of internal therapy**
   - Diseases of nutrition and urinary system
   - Diseases of the liver and bile ducts
   - Diseases of the digestive system
   - Some heart diseases

3. **Indications of inhalation therapy**
   - Respiratory Diseases
   - Chronic pulmonary emphysema
   - Chronic rhinitis, pharyngitis, laryngitis

Contraindication of Thermal Treatment

1. **In external therapy**
   - Hemorrhage of cerebral
   - Insufficiency of Coronary
   - Hemorrhages of various organs
   - Severe forms of diabetes
   - After the sixth month of pregnancy
   - Malignant neoplasms
   - Active tuberculosis

2. **In internal therapy**
   - Calculus of kidney or Bladder with frequent seizures or hematuria or solid stones, nephritis.
   - Gallstone colic with frequent or large stones, cholokystitis in the acute phase, a recent ulcer of the stomach or duodenum.

3. **In inhalation therapy**
   - Diseases of the respiratory system in acute phase
**Rheumatic Diseases**

The most frequent use of the Thermal balneotherapy is in rheumatic diseases. Rheumatic diseases are now considered one of the biggest social wounds. There are in first rate in the word and compete with mental illness. From economically and socially is a big problem for every country. They cause premature disability and high health care costs. When the objectivity of a country is its heathland productivity, thus disease creates an increased economical strain with similar outcomes. It causes a decrease in work strengths, an increase in disability and in medical, pharmaceutical and hospital care.

Signs of improvement of the disease appear after curative treatment for many cases of disease such as gout, degenerative joint disease, the ankylosing spondylitis, back pain and sciatica.

For each form of them, the doctor recommends a kind of or a combination spa. But apart from the healing properties of the spa, removal from the daily routine for three weeks rest and can also bring peace of mind. Daily medical care, staying in a mild climate, social interactions and various culture events contribute to the elimination of stress and help in faster improvement of the disease.

**Use of Water main in service Greek Spas**

<table>
<thead>
<tr>
<th>Spa</th>
<th>Spa-drinking therapy</th>
<th>Drinking therapy</th>
<th>Spas and Inhalation spas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kamena Vourla Evia Vouliagmeni Thermi Lesvos Kythnos Lagadas Methana Apollonia Ikaria</td>
<td>Platystomo Loutraki Caiafapas Nigrita</td>
<td>Kallithea Rhodes</td>
<td>Thermopylae Smokovo Kilini</td>
</tr>
</tbody>
</table>

**Conclusions**

The thermal spa in spite of the progress of medicine has its value as long as the chemical, mechanical and thermal elements are properly used.

Depending on the condition a method or combination a method or combination of methods (baths, inhalation stream, mud etc.) is selected by the medical staff.
It does not offer a complete cure but reduces pain and improves the overall condition of the patient. It is also a kind of vacation with all the benefits that involve mental health patients. The state should utilize this alternative tourism that wills five great impetuses to economic growth.

**THERMAL WATER IN COSMETICS**

Thermal water is being increasingly used in recent years to replace all or part of the water in the recipes of cosmetic products. In Greece, from antiquity, but until recently, people bathe in the waters of hot springs to beautify but also to maintain their health. There are many references to the Greek tradition of the strength of the thermal water.

The salts and the minerals contained in thermal waters are ideal for skin care and all that was known from ancient times. Today, the role of the thermal water is being, not only in medicine but also in cosmetics. In France, at least four companies have produced a series of cosmetic products under the name of the source from which they derive their water. But the trend is spreading to other countries and is becoming fashionable. It is therefore simply a new fashion? Or a reality?

No. The investigations made show that there are certain advantages to using the thermal water in the skin.

These properties find application in cosmetics and dermatological products in hydration, the treatment of oily skin and acne, treatment of atopic dermatitis in children and adults such as eczema, psoriasis, burns, healing problems and skin sensitivity.

Water is the most important ingredient in cosmetic products which can be contained at rates up to 100%. In a comparative study of various water and clinical research on the effect of water on the skin showing the properties and confirming the experience of centuries. Thermal waters have a future in cosmetic. We must look to this future in our country in dozens of hot springs, tracing the rail of civilization through thousands of year and using the tools of modern science.
MUD BATHS IN GREECE

A mud bath is a bath of mud, commonly from areas where hot spring water can combine with volcanic ash. Mud baths have existed for thousands of years, and can be found now in high-end spas in many countries of the world.

Historically, the mud bath treatment has been used for centuries in Eastern and Western European spas as a way to relieve arthritis.

In Greece we find mud baths in:

- Krinides near Kavala
- Sagiada Beach near Igoumentitsa
- Pikrolimni near Kilkis
- Siderokastro near Serres
- Plaka in Limnos
- Killini in Peloponnese

The last year because of the economic crisis many insurances don’t pay for the mud baths, so the number of tourists decreased. The cost of a double room with breakfast is around 40€ and for the therapy 12-15€.

Many tourists from Cyprus, Canada, United States and Europe are visiting the mud baths. The most popular are:

Mud Baths in Krinides

The mud baths in Krinides are the one and only presence within the systematic clay-therapy field. The surprising properties of clay are well known by the end of last century as it is evidenced by an old erection that you can see nearby the baths.

Clay Infirmary

The Clay Infirmary is situated 3 km west to the village of Krinides and stands as the only Greek presents at the field of clay therapy. The remarkable facilities of clay are known at this area at least from the end of the past century. The presents of an old building next to the infirmary shows that point. This building is believed to be a water pool very helpful for people to wash away clay after the therapy.
**Instructions**
The clay-therapy has to be done 3-4 hours after lunch with the urinary bladder empty prior to clay application. The patient has to rest after each application for at least 30 minutes.

**Healing Virtues**
The healing virtues that are rendered to clays with pharmacological effect are mainly due to the inorganic components that are:

1. antiseptic property
2. matters exchange property (skin - clay)

The healing clay brings an effect:

1. Locally
2. Generally

**Locally on skin’s surface**

Results:

a. increase of skin's temperature
b. increase of conductance
c. membrane's capability changes
d. influences on absorption phenomenon
e. congestion of capillary vessels
f. activation of sweat glands
g. activation of enzymes - hormones

**Generally**

Functions through body's refluxing arcs from materials that enter the organism (sulphur, radon, sodium chloride etc.)
Therapeutic indications

- Rheumatology disorders - Traumatic disorders, inflammatory etc. degenerative arthropathies, neuralgias, discopathy, rheumatisms
- Post-traumatic treatment - for sprains, bruises, pain relief due to fractures
- Gynecology Diseases - problems of sterility, inflammatory diseases of genitalia, disturbances of menstruation, amenorrhea, troubles from adhesions due to gynecological surgeries, vaginitis (etc)
- Diseases of respiratory system - asthma, chronic bronchitis
- Cardiovascular diseases - vascular diseases, phlebitis, vascular diseases.
- Dermatopathies - eczemas, rosaces, psoriasis, toxic dermatitis
- Neural system diseases - insomnias, stress, traumatic peripheral paralysis of nerves only if there is a sensorial deletion
- In aesthetics as cosmetic
  a. Increase of body’s temperature
  b. Effect to cardiovascular and circulatory systems
  c. Effect to respiratory
  d. Influences to water - electrolytes changes
  e. Neurotransmission influences (central nervous system, neural conductibility)
  f. Influence to immunogenic system
  g. Influence to enzymes activation and their transfer to circulation
  h. Influence to metabolism
  i. Influence to general kinesthesia

Mud Baths in Pikrolimni

Pikrolimni is located in the south side of the prefecture on the boarders with Thessalonica, which is located 23 km away. It is a small shallow lake that extends over 4.500 sq m. and which is usually dry during summer.

The bottom of the lake consists of clay which is full of sulphurous compounds and nitrate and this makes its mud ideal for therapeutic and cosmetic applications, known all over the country. Nowadays, the area has an organized Clay therapy center and provides accommodation and catering. Over 15.000 visitors come for clay therapy every year.
THE DEVELOPMENT OF THERMAL SPRINGS AND THERMAL TOWN IN NEW GREECE

In our country hydrotherapy virtually ceased by the end of the Byzantine years, although cases were reported using the hot water from the Turkish conquerors. Not until later did the Ottoman Empire resume its interest in the state for its thermal springs. The first government in Greece, with Ioannis Kapodistrias as the governor and Othonas as King, showed great interest in the development of hot springs. In 1830-1833 German doctors and chemists made the first analysis of thermal waters. Also a group of doctors visited the hot springs of Kythnos Island and studied its thermal springs. Later, during the reign of Otto the first hydrotherapy center was created.

The Spa of Kythnos is located at Loutra. The building dates from 1857 and has hot springs with healing properties. You can see from up close the baths of the first royal couple in modern Greece, Othonas and Amalia that are there.

The first king of Greece, Othonas with his Bavarian advisers, recorded hot springs in the country and the metallic properties of water. The first auctions on renting spas by the Decree of 1836 concerning “the taxation of land and animal products” were made.
In **1861** the act "mines and minerals" gave an impetus to the use of spas.

In **1917** the Greek government appointed 12 doctors for the study of hot springs and the establishment of the field of Hydrology.

In **1918**, the Ministry of Finance created the **Office of Foreign Affairs and Exhibitions**, now officially responsible for its thermal springs.

In **1927** a permanent branch of hydrologists and doctors was established and up until 1940, 12 of them were placed to study the main springs of the country.

In **1936**, the spas passed to the responsibility of the State Secretariat of Press and Tourism and in **1938** The Greek mineral resources are accurately recorded in the interwar years by M. Pertesi, a chemist who in 1923 gave a detailed chemical analysis of the water of about 750 springs.

In **1938** was established the University of Clinical Hydrotherapy and medical climatology, with Professor **Eugenio Foka** (1), which was dissolved after the war.

In **1950** the jurisdiction relative to the hot springs passed over to the Greek Tourism Organization (2) who later distributed them to the government and to some other individuals.

At this time the systematic recording and studying of geological chemical-physics, Therapeutic and other characteristics of thermal springs began and thus a new chapter of thermal tourism and thermalism begins.

In **1983** the Association of Municipalities and Communities of Greek Spas is founded and the gradual transfer of Spas to the jurisdiction of local authorities begins. ([www.thermalsprings.gr](http://www.thermalsprings.gr))

In **1992** the organization above establishes the Greek Thermal Company, whose headquarters are in Thessaloniki.
(1) **Eugenio Foka**

As professor of Hydrotherapy, he undertook the task of teaching his students the importance of this subject, given the wealth of Greece concerning its springs and their hydro-metallic and therapeutic properties. He encouraged the scientific study of Thermal Springs, statistical studies, laboratory research and medical observation at a laboratory of the Medical School in Goudi, which he helped to fund for his research. His findings were announced at Medical meetings both in Greece and Europe, and were also published in Medical Journals. His work was involved in organizing the main thermal spa towns, creating the Hydrotherapy Centre in Kamena Vourla, the reconstruction and re-organisation of the drinking water Therapy Centre in Kallithea Rhodes, the creation of the Hydrotherapy Centre in Ypati, and improving the function and equipment of Spa Towns such as Platystomo, Smokovo, Kaifa, Thermopyles and others.

With excessive correspondence to the Greek Tourist Organization (EOT), Fokas attempted to raise the interest of the State in the Greek Spa Towns by promoting them as health benefactors for the Greek people and as a source of economy for the Country. He tried to raise awareness of the progress of European Spa Towns through lectures and scientific gatherings, radio broadcasts, newspaper articles with his own constant informing and his own expenses. It was through his own contribution that therapeutic remedies at spas were adopted, funded and recognised by the Ministry of Health, the State Welfare Fund and other organisations, as was the case in the rest of Europe at the time.

(2) **Hellenic Organization of Tourism**

The Greek National Tourism Organization (GNTO) is a Public Entity (PE) supervised by the Ministry of Culture and Tourism.
The evolution of hot springs is closely related to the perceptions of Medical Pathology. At times when medical science applied natural remedies to various illnesses, we can observe development in thermal springs.

With the boom in chemical pharmacology and the development of surgery, the use of thermal springs and the belief in the therapeutic properties is abandoned. The improvements of most thermal spas which are still in use today were made in the 1930’s.

The exploitation and the gradual organization of Spas in the country started in the late 19th century and continued in the early 20th century. Among the first developed springs, are Edipsos of Kythnos, in Kylíni, in Loutraki and in Kaiafa. Many of these areas evolved into large resorts that flourished during the interwar years, due to their use by the upper classes of the time.

The period between the wars will mark a new era in health tourism as the state was reorganized, the middle class grows, and the choices expand with the annexation of new territories. After 1920, Greek spas are growing rapidly, centered on the elegant architectural buildings and luxury hotels which attract Greek and European visitors of a high income level.

Famous bath centers in our country were Edipsos, Ypati, Lagadas, Loutraki Corinthias and Methana.

In 1929, in Sariza on Andros Island, the sale of bottled water begins while in Kaiafas renovated hotels, the bathhouse with individual baths and the existence of various forms of entertainment (theatre, dances, cinema etc.) are advertised.

In 1930 the new premises at Platystomo in Fthiotida are opened and Kamena Vourla is fully utilized. These premises are presented as organized tourist resorts, with hotels, restaurants and other facilities, even a casino, such as in Loutraki. The clientele even consisted of financially prominent Europeans and Arabs, who took advantages of the Spa treatment combined with a more cosmopolitan lifestyle.

Then one by one area all over Greece with hot springs and easy access to them begin to work on their development.

In Greece, because of its geographical position and geological structure, a large number of spas and spa towns exist. Greek spas used to be a meeting place and they offered communication, therapy, leisure entertainment, wellness and relaxation.
Today the word SPA it is used generally for its hot springs. The name originates from or is deemed by the name of the homonymous city SPA in Belgium near Liege or the initials of the Latin phrase sanitas per aqua which means health by water. The official bathing season is primarily summer (June-October) as established by the Romans. Today more and more people believe that at least twelve spa therapies every year, particularly for the old, strengthen the body and help them cope with the hard winters. This habit of preventive treatment and relief of physical pain, despite the fierce competition of bathing in the sea, for the same reasons will never be defeated.

**CLASSIFICATION OF THERMAL SPRINGS IN GREECE**

*According to size and the development*

Depending on the land management requirements and their development in Greece, the springs are classified into the following categories.

- **Resorts**: organized bathing facilities that are associated with the development of the urban center.
- **Baths**: Multi-functional centers: Organized spa baths and entertainment function independently and interact with the local community.
- **Multi-functional complexes**: Organized facilities for bathing and recreational functions, autonomous and independent from the residential network in the region. These centers are developed exclusively for therapeutic tourism.
- **Bathing stations**: Organized facilities for bathing in small regional settlements. Therapeutic tourism is the only thing on offer in such places.

*Depending on the Temperature of the Water*

Depending on the temperature of the water the hot springs are classified as shown below

- **COOL HOT SPRINGS**: the hot springs of thermal mineral waters which have a temperature of up to 200°C and are used primarily for bottling and drinking. Such sources are Souroti of Thessaloniki, the Eleftheroton Kavala, Nigrita of Serres, Sariza of Andros, Doubia Halkidiki, Metalikou Kilkis, Myrtia Aitolokarnanias and Sour Water of Florina.
• **HYPOTHERMAL HOT SPRINGS**: The source of thermal mineral waters which have a temperature of 20-40 °C and are usually chlorinated sources of alkaline earth. Such sources are Nigrita of Serres, New Kessani of Xanthi, Platistomo and Ypatis of Fthiotida, Krinides of Kavala, Loutrakí of Corinth, Loutrakí Aridaías Pozar and Nymphopetra of Thessaloniki.

• **MESOTHERMAL HOT SPRINGS**: Hot springs of thermal mineral waters which have a temperature of 35-50 °C. Such sources are of Eleftheres Kavala, Langada, Smokovo and Aidonohori Karditsa, the Angistou, Sidirokastro and Nigrita of Serres, Nea Apollonias Thessaloniki, Eftalous and Gera Lesvos, Kamena Vourla, Edipsos and several others.

• **HYPERTHERMAL HOT SPRINGS**: Hot springs of thermal mineral waters which are above 50°C. Such are Edipsos, Polychnitos, Lisvoria and Megalon Thermon Lesvou, Agiasmata of Chios, Ikaria, Kimolos, Kythnos and Nea Kessani Xanthi.

• **THERMAL AND HYPERTHERMAL SPRINGS**: In this category are the hot springs of Amarantos and Koukou Ioannina.

**Depending on the Chemical Composition of the Water**

The distinction is based on the amount of dissolved salts within the thermal mineral waters and refers to the electrical conductivity of the water, the type of salt, the minerals and gases that the water contains.

Most spas in our country, at least the 142 that were examined for their thermal mineral waters contain the follow minerals:

- Sodium Chloride at a percentage of 47.18% (Sodium-chloride sources)
- Sodium Chloride carbonic acid at a rate of 26.7% (Carbonic acid-sodium chloride sources)
- Calcium-magnesium carbonic acid at a rate of 26.7%

Springs which are classified as thermo-metallic are those with a high water temperature, dissolved salts or gases, or that contain even a small percentage of compounds or elements not found in the waters of the usual sources, such as sulfur, hydrogen sulfide, iodine, arsenic, radioactive substances, etc.

The therapeutic properties of thermal springs are largely due to these properties and with proper treatment and medical monitoring will improve bathers health both physically and mentally.
Of the total 822 sources, 752 can be developed, but today only 348 are used to a greater or lesser degree. (Approximately 42%)
Of these sources 180 are used for spa therapy, 20 for spas and drinking water and approximately 148 for drinking water only.

One hundred and forty two sources have been chemically analysed and 76 of these have been deemed as Thermal Springs. From the officially designated Thermal springs, 23 are characterized as Thermal springs and of touristic importance and 53 Thermal springs are of local and historical importance.

1. TABLE OF THERMAL SPAS ACCORDING OF THEIR SIZE AND DEVELOPMENT

<table>
<thead>
<tr>
<th>Resorts</th>
<th>Baths</th>
<th>Multi-functional complexes</th>
<th>Bathing stations</th>
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</table>
THERMAL TOURISM IN GREECE

Tourism is the major source of income for Greece. It contributes significantly to the prosperity of the country, on small or larger variances.

Through the recent years, people’s need to improve their quality of life has predominated a need for improvement the way of life and health of the people. This could be achieved in combination with their pleasure which means WELL-BEING Thermal Tourism. Health problems are prevented and confronted through vacations.

Until now, this way of tourism is not widely spread, even though it is so important for the Greek economy. Its beneficial results have the ability of attracting many tourists.

Popular Thermal Spots in Greece

1) Thermae Sylla Spa in Edipsos: offers therapeutic programs as well as modern regeneration care and anti-stress based on thermal water (maintained building of 1897).
2) Vintage Spa in Loutraki: preserves a massive esthetic of 30’s and is especially popular cause of the beneficial elements of the thermal water.
4) Pozar baths in Pella: Underneath century-old planes in an overgrown gorge, beneficial waters gushed in the river with a temperature of 30-39°C. Swimming en plain air in the waterfalls of the river is a memorable experience.
5) Geras baths in Lesvos: with a flavor of another season.
6) Therma in Kos: hot beneficial water brooks formatted within the sea.
7) Hydrotherapeutic center in Kythnos.
8) Thermopyles and Kamena Vourla thermal springs.
9) For those who like mud-scrolling in order to gain health and euphoria, mud baths of Kyllini and Pikrolimni as well as Krinides in N. Greece are the best destination places.

Annually, thermal springs of Greece attract over 100,000 visitors.
MEDICINAL TOURISM

Medicinal tourism is a modern and developing product in the field of tourist businesses which require continuous renewal because of antagonism.

On the subject of renewal we mean the modernization of the facilities, the development of local communities, specialist personnel and advertising.

Medicinal tourism can be divided into therapeutic tourism and tourism for relaxation purposes.

**Therapeutic tourism**, which is constantly developing in many European countries, includes everything connected to health, such as:

- Medical check-ups
- Special diet
- Vitamin therapy
- Herbal remedies
- Exercise
- Specialized therapies, such as anti-smoking
- Stress relief therapies
- Psychotherapies
- Kinetic therapy
- Treatment of insomnia
- Research into correct body posture, aesthetics etc.
- Care and rehabilitation wards

**Tourism for relaxation purposes includes non-medical activities such as:**

- Culture activities
- Athletic activities
- Aesthetic and relaxation services

An important part of the health tourism industry is the bottling and marketing of mineral water. There are many cosmetics manufacturers who use mineral water and clay as the basis of the cosmetics.

Also in the health tourism industry we can find various products either natural products or products made from some natural ingredients, whose production is based on traditional recipes. These products may contain herbs, natural therapeutic and aromatic plants, flowers, plant extracts, plant oils, seaweed, sponges, fish oils, plant based cosmetics, soap, etc., which are in increasing demand in recent years.
Medicinal tourism used to attract older and middle-aged people who wanted treatment. With the passing of time, however, medicinal tourism developed into a modern kind of tourism with more specializations, the use of new technology and increased activities.

The aim is for the patient to gradually become a tourist.

Today more and more young people in Europe and all over the world choose to take short breaks at thermal spa destinations for relaxation purposes.

There are many opportunities for health tourism in Greece mainly in rural areas where there is an excellent natural environment and climate. Unfortunately only 4-5 areas are developed.

As Greece is rich in thermal springs it would be an antagonistic country in the field of medicinal tourism which could combine conference tourism with recreational tourism which would prolong the tourist season.

This in turn would provide greater development in the country as a whole.

Despite the fact that Social Security offers thermal spa programs, this area is still underdeveloped. This may be due to the fact that a lot of antagonism comes from the pharmaceutical industry and also from doctors who are unwilling to recognize Hydrotherapy as a method of treatment.

Also the lack of advertising and information available to the public has also played a role in its decline.
THE BENEFITS OF THE DEVELOPMENT OF THE THERMAL SPA TOURISM

Thermal spa tourism is a type of tourism which can be developed all year round, thus prolonging the tourist season.

It is affected much less by adverse economic problems.

Given that most thermal springs in Greece are found outside large cities and also in areas which do not have any tourism, their development will boost the general tourist influx.

It will also increase job opportunities in the fields of medicine, hotel employees and specialized staff that will be necessary to the needs of local communities.

Another result of this development will also mean that the population of the area will find local work and Greek tourists will not need to turn to other more developed countries and local communities will have regular visitors.

SUGGESTION OF THE DEVELOPMENT OF THE FIELD OF THE THERMAL SPAS

1. The improvement of spa towns using modern equipment and a modernized infrastructure.
2. The creation of a complexes – hotels – health centers
   a. General infrastructure: Suitable environment required for long stay tourist such as green areas, gardens, lakes, tennis court, athletics facilities etc.
   b. Specialize infrastructure: Suitable equipped therapy centers with specialist doctors, nursing, and technical stuff nutrition and exercise departments. In this way the hotel complexes will be able to offer holiday packages concerning beauty, good physical condition, physiotherapy units, diet, cosmetology, cultural events etc.
3. Easy accessibility: the areas designated for long stay tourist centers must be close to airport and must have a god road network. In general a well organised transportation infrastructure aids in the development of natural resources.
4. The development of local services such as bank, shops, restaurants, night clubs and also the development and support of the agricultural economy which will provide the area with whatever is necessary.
5. Ensuring the quality of the environment: Most thermal spas are found in areas combining both mountains and excellent climatic conditions. The preservation of the natural environment in spa town tourist centers is of the utmost importance. It is well-known that the degradation of the environment a part from the destruction of its natural beauty also leads to the reduction of the competitiveness of the particular area on the tourist market.

6. The development of the surrounding area: with spatial intervention such as urban planning construction and hotel facilities available to the people.

7. Foundation of a specially aimed tourist organization: Organised tourist management will make the product more attractive as it will offer the security and safety that the tourist needs in order to decide upon a visit.

SPECIALIZED PROFESSIONS AT HYDROTHERAPY CENTERS

At hydrotherapy centers there is a need for specially trained stuff that has the ability to respond to its conditions.

A part from medical and nursing stuff and university trained physiotherapists, there are also training schools which include educational courses on spa therapy specialists: spa therapy assistants and spa physiotherapy assistance for high school graduated called Professional Training Institutes (IEK).

Unfortunately it has been observed that large spa towns do not have programs for the training of specialized stuff.

General description of Specialized professional Spa-Therapist Assistant

1. Assists the client’s understanding of hydrotherapy and satisfies his needs.
2. Comes into contact with the client-tourist, explain and instruct the process of spa therapy.
3. Contributes towards the completion of the spa therapy program.
4. Estimates the quality of the therapy and organizes the spa therapy programs.
5. Observe the spa therapy of the individual and reports problems which may appear during the baths to the head doctor. In the case of emergency, takes required action and offers the necessary help.
6. Checks necessary conditions (water temperature, heating, cleanliness etc.) before the use of spa therapy equipment by clients.
7. Adjusts the spa therapy equipment and uses the material according to the instructions given by the head doctor of the unit.

General description of Specialized professional Spa-Therapist-Physiotherapist Assistant

1. Organizes and prepares the area and the equipment of his work place.
2. Instructs specialized staff on the treatment and handling of the disable.
3. Observes hygiene in the spa therapy areas.
4. Advises patient on rules of hygiene before and after therapy.
5. Provides first aid and applies a basic knowledge of resuscitation.
6. Stays with the patients during therapy and guides him through hydrotherapy area.
7. Applies the rehabilitation program for each patient according to the doctors’ instructions.
8. Applies hydrotherapy techniques used to deal with injuries of the nervous and myoskeletal system as well as techniques used to deal with brain paralysis, rheumatic disorders, skin disorders and burns.
Professions found in a Spa Therapy Center

The needs of a spa center concerning its workforce includes specialized staff and position which can be increased according to the development of the Centre.

1. Director of the Centre.
2. Managerial and secretarial staff.
3. Specialist doctors (orthopedists, pathologists, dieticians, etc.)
4. Nursing staff.
5. Hygiene assistants.
6. Technical staff (electricians, plumbers etc.)
7. Beauticians.
Summary

THE HISTORY OF THERMAL SPRINGS AND HYDROTHERAPY IN ANCIENT TIMES

People in ancient times used water as part of their culture because they considered that its properties were capable of healing both the body and soul. Warm, cold, mixed with herbs or other ingredients, it was a part of their culture in their daily lives and also their religion. Egyptians, Phoenicians, Pre-Hellenics, Minoans and Etruscans paid homage to water as is show in ancient writings and also in ancient ruins which can still be seen today.

The Greeks

The history of bathing in ancient Greece begins from the place of the so called Gymnasium. By incorporating full washing bathing facilities into its regular program, Gymnasium created the social and architectural context for one of the earliest forms of communal bathing in ancient society and exerted a formative influence in the subsequent development of baths.

In ancient Gymnasium the loutron, was the only space related to washing and bathing. It was an open space, where bathing took place with the use of cold water, through elevated basins or simple shower arrangements. From the second half of the 6th century and on the representations of washing and bathing of men and women become very frequent on vase paintings. Some of these can indeed be recognized as depictions of scenes of bathing in the palaestra.

Most ancient baths were simple structures constructed of mud brick with a limited use of baked brick, limestone and stucco. The plan of Greek bath shows a simplicity and functionalism, whether for practical cleaning or for ritualistic purposes, it is characterized by rectangular or irregularly shaped units clustered around one or more circular chambers.
Bathing was a practice familiar to the Greeks of both sexes from the earliest times, both in fresh water and salt. Warm springs were also resorted to for the purpose of bathing.

The Ἡράκλεια λουτρά (Heraklea Ioutra) shown by Hephaestus or Athena to Hercules are celebrated by the poets. Pindar speaks of the hot baths of the nymphs, and Homer celebrates one of the streams of the Scamander for its warm temperature. Bathing in rivers or the sea was always common for the young. There are many myths concerning thermal springs and ancient Gods and Heroes in Greece.

After bathing both sexes anointed themselves with oil, in order that the skin might not be left harsh and rough, especially after warm water. The use of precious unguents (μύρα) was unknown at that early period. In the heroic ages, as well as in later times, refreshments were usually taken after the bath.

The natural warm springs were not only esteemed as sacred to Heracles, but also considered highly medicinal. The hot springs of Edupsos in Euboea were famed for their healing properties, as also was a cold spring, which flowed for a time. In later times it became a great resort for pleasure as well as health, especially in the spring. The Ancient Spa of Therma in Ikaria: The island of Ikaria has an abundance of the highly therapeutic radio-energized springs. They are regarded as the best in the world. Historically Therma in Ikaria has been a very popular place particularly for hydrotherapy ever since the 4th century BC.

The Romans

In 25 B.C. the Romans expanded on the use of mineral and thermal baths as social experiences. They constructed the first large-scale spa to be used by hundreds of bathers. Elaborate aqueduct systems carried mineral waters to private stone tubs, steam rooms and public bathing areas. The largest of all Roman baths was the Diocletian. It was completed in A.D. 305 and covered an area of 130,000 sq. yards! Many of these spa resorts were destroyed during the fall of the Roman Empire. Taking the lead from the Greeks, Romans embraced bathing as a regular regiment for health. However, Romans considered the baths more important than the gymnastics alone. Besides cleansing, exercises, socializing, relaxation, and worship, medical treatment was also applied extensively. Now as opposed to the Greeks who used Spas as a practice following intense Gymnastics, the Roman Spas also had a medicinal emphasis and were used largely as recuperation centers for the wounded military soldiers. However, recuperation also included therapeutic centers for the healthy soldiers as well.
Following the demise of the Roman Empire and the turbulent barbaric invasions, the ancient and sumptuous thermal facilities began to be deserted, also due to the spread of a Christian culture, in Byzantine times, that was contrary to forms of nudity and promiscuity. Nevertheless, the bath was still accepted as a simple cleaning process.

**The 19th and 20th Centuries in Europe**

Bath, England, has been a popular spa destination since the Romans founded Britain’s only hot water springs. The main spring bubbles out almost one million liters of 49 degree water each day! Scientific studies have revealed over 40 different minerals in the water, surprisingly including a slightly radioactive background reading! The Belgian town of Spa was named after its hot wells and baths, renowned throughout Europe in the 14th century, and still in existance today.

Spa has been frequented as a watering-place since as early as the 14th century. The oldest known mineral bath still in operation today is in Merano, Italy where there is evidence of organised use of the spring dating back 5000 years. In Ireland, soaking in a tub with seaweed has been popular since Edwardian times for its health benefits. It is now experiencing resurgence in popularity.

Around 1800 interest in bathing began to be in vogue again, and there were attempts to further analyse the mineral benefits. However, the motivation was largely medicinal again. Doctors were convinced that for each disease there was an appropriate medicinal spring, which could be discovered through chemical analysis of the waters. Two main protagonists of the methodical application of hydrotherapy are Vincent Priessnitz, a peasant farmer in Gräfenberg and Fr. Sebastian Kneipp, a Bavarian priest, further developed the principles of balneotherapy (medicinal use of thermal water) and hydrotherapy (immersion of the body in thermal water for therapeutic purposes). Individual treatments were prescribed, based on the composition and temperature of the water. Also, combinations of treatments were developed consisting of hot and cold baths, herbal baths, mud packs, active physical exercises, massages, and diets. Kneipp advocated a holistic approach to the treatment of a disease. In contrast with the spa resorts, which were aimed at the elite, Kneipp directed his attentions to the common man.

Throughout Europe and the Americas the public Spas were on the rise. They were integral parts of gentiliani life. Every spa resort had its own theatre, casino, and promenades besides the bathing buildings. In Germany, Austria, and Belgium much importance was attached to ostentation. Grand hotels arose with casinos and dancing establishments surrounding the spa resorts.
The spa resorts became not only a meeting center for the elite but also a place of creativity for painters, writers, and composers. The baths were again crowded. Baden-Baden (Germany) became the most glamorous resort in continental Europe. It was the place to see and to be seen at.

The second half of the Twentieth century brought a further development in hydrotherapy. After two World Wars, changes to the social fabric and to the political aspects of the various nations, the popularity of the thermal baths again decreased. The destruction of the baths reduced them to ruins, the difficulty of revival, the progress of chemistry and pharmacology have radically changed the way of taking “baths”. Elitist hydrotherapy has given way to a social form of hydrotherapy, open to a decidedly larger public, with the addition of thermal cures in the therapeutic program of the national health system.

HISTORY OF THERMALISM IN GREECE

The history of thermalism is from ancient Greece. The first observer of those with therapeutic properties was the historian Herodotus (484-410 b.c.). He described some spas and suggested, playing the role of doctor, health cures take place in certain seasons and for 21 consecutive days.

Hippocrates of Kos (460-375 B.C.) who is considered to be the instigator of medical science and father of hydrotherapy, dealt with the various natural waters, found in marshes and ponds, formed by the rain and into those that emerge from metallic rocks. These are warm, containing iron, copper, silver, gold, sulfur and other metal elements.

Apart from various well-known references in the Bible, during the Roman era and the Byzantine times many doctors dealt with hydrotherapy and Thermalism health cures. Such were Herophilos, Erasistratos, Asklipiadis, Agathinos, Galen, Oreibasios, Paul the Aiginitis etc. All of these doctors agreed with the thermalism effect of natural springs. A student of Agathinou, wrote, in the 1st Century ad., about the therapeutic properties of hot sources and said that it is not possible to determine precisely the way each of the sources separately develop their therapeutic properties because they require long-term observations and experiments. That continues today.
NATURAL THERMAL SPRINGS IN GREECE

The waters of natural water springs or whirlpools emanates through rocks that come out of the Earth’s core. They are mineral waters containing dissolved mineral ingredients—such as sodium, potassium, calcium, magnesium, iron, iodine, radium, phosphorus and sulphur—or gases like carbon dioxide, hydrogen sulphide, nitrogen, oxygen and hydrogen. The waters are not of an equal degree of acidity and they are acid or alkaline, or neutral. The temperatures vary but have an average of 60°C. There are springs that may contain a higher level of one or two substances and others that may contain a lower level.

The therapeutic effect of the chemical factors of mineral water, knowledge which has come from ancient times, is now given a scientific basis. The effect of mineral water based on the three factors: chemical, thermal and mechanical in reaction to rheumatic diseases is thus pain relief, inflammatory reduction, improvement of joint movement and flexibility. Mineral water, depending on its chemical components, can have diuretic and cleansing properties such as bronchial dilation. Thus, as a result it can be used as a consumable therapy and inhalation therapy.

Greece is one of the richest countries in natural resources. Source waters are in our country from 752 different geographical points. Most sources are located on islands, 229, mainland Greece with 156 sources, Macedonia with 115, Peloponnese with 114, Thessaly with 57, Epirus with 56 and Thrace with 25.

The thermal spa in spite of the progress of medicine has its value as long as the chemical, mechanical and thermal elements are properly used. Depending on the condition, a method, or combination a method or combination of methods (baths, inhalation stream, mud etc.) is selected by the medical staff. It does not offer a complete cure but reduces pain and improves the overall condition of the patient. It is also a kind of vacation with all the benefits that involve mental health patients. The state should utilize this alternative tourism that wills five great impetuses to economic growth.
THE DEVELOPMENT OF THERMAL SPRINGS IN MODERN GREECE

The first national government of Greece with the Prime Minister Ioannis Kapodistrias showed interest in the development of thermal springs. German scientists of the time study and categorize thermal springs and the first king of Greece, Othonas, builds the first facilities on Kythnos Island in 1857 and visits them regularly.

At the beginning of the 19th century, thermal springs begin to gain recognition in the medical world and the therapeutic qualities of the springs become more and more well-known.

In 1938 in Athens, the department of hydro-therapy is founded in the Medical School, with the professor Evgenios Fokas. Evgenios Fokas dedicated his life and his wealth to the development of thermalism, not only as a professor but also by intercepting and persuading social security to provide free treatments to all insured patients.

By the middle of the 19th century, there was a large development in spa towns such as Edipsos, Kamena Vourla, Loutraki Korinthias, Methana and others. These spa towns not only became Therapy Centers but also cosmopolitan destinations for rich and famous Europeans and Arabs.

After 1960, with the boom of the pharmaceutical industry and the development of medical surgery, thermalism started to wane.

Depending on their development, the spa towns in Greece can range from luxurious resorts to simple facilities for therapy with no special installations. Important Spa town-resorts today are Loutraki and Edipsos.

The large numbers of thermal springs in Greece, 828 in number, the large range in the temperature of the thermal spring water and in its composition, are some of the most impressive in Europe. Unfortunately only 348 are in use either as spa or for drinking therapy.

Today medical-thermal tourism is an advancing product and due to European competition it demands constant development. This product cannot stand alone in today’s market. It must be combined with relaxation and rejuvenation services in order to become more appealing. The industry of this kind of tourism in Greece is now taking its first steps with great difficulty. There are many reasons for this.

Seaside tourism is highly developed, lack of central organization, the small level of production of beauty products, the road networks in some cases, urbanism (most thermal springs are located some distance away from the larger urban areas) and the lack of interest for studies which would help to man thermal Centers.

Another dark spot is the legislation which covers thermal springs which in many cases and down to a lack of investments, causes problems for local communities concerning the action needed for the development of the springs in their area.
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THE WATER ............................................................................................................. 2

THE ORIGIN OF THE NAME “SPA” ......................................................................... 2

HISTORY OF THE SPA .............................................................................................. 3

The Greeks ..................................................................................................................... 3

Baths and Bathing ....................................................................................................... 4

Bathing installations in the Gymnasium....................................................................... 5

The Greek baths ............................................................................................................. 6

Construction and Architecture of most Ancient Greek baths ..................................... 6

History and habits of the baths in ancient Greece ....................................................... 6

Ancient Bath Vessels in Thesprotia ............................................................................. 8

Edipsos thermal springs, north Euboea, Greece .......................................................... 11

Therma thermal springs, in the island of Ikaria Greece .................................................. 11

The Romans .................................................................................................................. 13

Decline of the Roman Empire, middle ages and the Byzantines ................................. 14

GREEK SPA TODAY .................................................................................................... 17

GREEK THERMAL ....................................................................................................... 22

HISTORY OF THERMALISM IN GREECE ................................................................. 22

NATURAL THERMAL SPRINGS IN GREECE ............................................................. 23

MEDICAL HYDROLOGY–SPA THERAPY .................................................................. 24

General rules of thermalism ....................................................................................... 26

Therapeutic indication of Thermalism ......................................................................... 27

Contraindication of Thermal Treatment ...................................................................... 27

Rheumatic Diseases ...................................................................................................... 28

Use of Water main in service Greek Spas ................................................................... 28

THERMAL WATER IN COSMETICS ....................................................................... 29

MUD BATHS IN GREECE ............................................................................................ 30

Locally on skin’s surface ............................................................................................ 31

Generally ....................................................................................................................... 31

Therapeutic indications ............................................................................................... 32

Mud Baths in Pikrolimni ......................................................................................... 32
CLASSIFICATION OF THERMAL SPRINGS IN GREECE .......................................................... 37
According to size and the development ................................................................. 37
Depending on the Temperature of the Water ....................................................... 37
Depending on the Chemical Composition of the Water ........................................ 38
THERMAL TOURISM IN GREECE ............................................................................ 40
MEDICINAL TOURISM ......................................................................................... 41
THE BENEFITS OF THE DEVELOPMENT OF THE THERMAL SPA TOURISM ...... 43
SUGESTION OF THE DEVELOPMENT OF THE FIELD OF THE THERMAL SPAS .... 43
SPECIALIZED PROFESSIONS AT HYDROTHERAPY CENTERS ............................. 44
General description of Specialized professional Spa-Therapist Assistant .............. 44
General description of Specialized professional Spa-Therapist-Physiotherapist Assistant.................................................................................................................. 45
Professions found in a Spa Therapy Center ............................................................ 46
Summary ............................................................................................................... 47
THE HISTORY OF THERMAL SPRINGS AND HYDROTHERAPY IN ANCIENT TIMES .. 47
The Greeks .............................................................................................................. 47
The Romans .......................................................................................................... 48
The19th and 20th Centuries in Europe ................................................................... 49
HISTORY OF THERMALISM IN GREECE ............................................................... 50
NATURAL THERMAL SPRINGS IN GREECE ......................................................... 51
THE DEVELOPMENT OF THERMAL SPRINGS IN MODERN GREECE .............. 52
Sources ............................................................................................................... 53