

# SANITATION AND HEALTH CARE IN ANCIENT SRI LANKA

## Sanitation

The object of this study is to review briefly the health care system that existed in Sri Lanka during the height of the Rajarata civilization, i.e., up to the thirteenth century A.D. Several previous publications have dealt with important aspects of ancient medicine. Among them the most noteworthy are the writings of S. Parnavitana, G.C. Urugoda, R.A.L.H. Gunawardena, Bandula Karunatilake, P.L. Prematilake and Arjuna Aluvihare.<sup>1</sup> Their writings, as well as the Sanskrit, Pali and Sinhala primary sources, along with epigraphic and archaeological material, have been utilized for this study in order to provide a broader picture of the health care system of ancient Sri Lanka.

Though not to the same extent as in modern times, ancient Sri Lankan society too was stratified, and each stratum had somewhat different living standards from the others. The royalty, nobility and the priesthood lived relatively comfortable lives and enjoyed reasonably good sanitary facilities. The extant evidence of porcelain ware, palace complexes, baths and pleasure gardens used by the royalty give an indication of living conditions of the royalty. The remains of major monastic complexes and ponds, wells, underground terracotta pipes, drains, toilets and septic tanks attached to them, too, indicate that Buddhist monks in major monasteries enjoyed a relatively high level of sanitation.

On the contrary, various references in the *Sihalavatthupakarana*, *Pūjavalī*, *Saddharmaratnavālī* and such other Pali and Sinhala literary texts point to the hardships faced by the peasantry. The living standards and conditions and sanitary facilities available to them were rudimentary when compared to those of the upper classes of society. This fact is important because most of the archaeological remains

<sup>1</sup> S.Paranavitana, "Medicine and Hygiene as practised in Ancient Ceylon", *The Ceylon Historical Journal*, Vol.3, No.2, 1953, pp. 123-125; G.C. Urugoda, *A History of Medicine in Sri Lanka from Earliest Times to 1948*, Colombo, 1987; R.A.L.H. Gunawardena, "Immersion as Therapy – Archaeological and Literary Evidence on an Aspect of Medical Practice in Precolonial Sri Lanka," *The Sri Lanka Journal of the Humanities*, vol. IV, Nos 1&2, 1978, pp.35-49; R.A.L.H. Gunawardena, "Obstetrics and Theories of Reproduction in Ancient and Early Medieval Sri Lanka," *Kalyani*, vol.III, 1984-1985, pp.1-2; P.V.B.Karunatilaka, "On the Practice of Surgery in Ancient and Early Medieval Sri Lanka", *Recent Researches in Buddhist Studies* (Essays in Honour of Y.Karunadasa) ed. K. Dhammajoti, *et al*, Colombo, 1997, p. 388-399. L.Prematilaka and Arjuna Aluvihare, "Ancient Hospital Systems of Sri Lanka," *Sri Nāgabhīnandanam*, Dr. M.S. Nagaraja Rao *Festschrift*, ed. L.K.Sirinivasan and S. Nagaraju, Bangalore, 1995, pp.765-781.

relating to health care are confined to palaces and monasteries. It is obvious that the environment and living conditions affect the health of individuals and communities.

Nevertheless, general rules on hygiene were applicable to all. Some of these prescribed for Buddhist monks are found in the *Mahāvagga*, *Samantapasādikā* and other Pali texts on *vinaya* and in Sinhala texts such as the *Sikhavalanda* and *Sikhavalanda Vinisa*. There is no doubt that regular bathing, brushing teeth, cutting long hair and nails, cleaning and sweeping the habitat and surroundings mentioned in relation to *bhikkhus* in these texts were relevant to all categories of lay society as well irrespective of their social standing. The *Caraka Samhitā*, one of the earliest Indian Auyurvedic texts, states that frequent washing of legs, the rectum, and urinary exits, regular trimming and cleaning of hair, beard and nails purify both the body and mind.<sup>2</sup>

The *Caraka Samhitā* as well as the *Susruta Samhitā* pay particular attention to physical exercise. According to these texts a self-loving person should do physical exercises in all seasons to maintain lightness of the body, activeness and youthfulness.<sup>3</sup> The *Kandavuru Sirita* written during the Dambadeni period indicates that the King, too, was expected to do the same. The monks were supposed to perambulate in monastic compounds early in the morning.<sup>4</sup> Thus the efficacy of physical exercise was well recognized throughout history.

The *Arthasāstra* of Kautilya written during the fourth century B.C., was known and studied in Sri Lanka at least from the late Anuradhapura period. While stipulating the ideal system of statecraft, this work refers to ideal rules and regulations to be adopted in health and sanitation management in cities. Accordingly, dumping garbage, allowing garbage to pile up, leaving room for water to gather in one place, defecation in public places, disposing of dead bodies of such pets as cats in streets were strictly prohibited. Similarly, the cremation of dead bodies in places not earmarked specifically for such purposes was prohibited. Offenders were to be punished by fining, the fines varying according to the gravity of the offence.<sup>5</sup>

Whether such strict regulations were enforced in all Indian cities is doubtful. Their enforcement in Sri Lankan cities is even more doubtful. But what is important to note is that the concepts of sanitation, hygiene and cleanliness of cities were recognized as priorities in both countries.

The Pandukābhaya legend in the *Mahāvamsa* refers to the establishment of villages in the periphery of the city for five hundred *Candāla* scavengers, two

<sup>2</sup> *Caraka Samhitā*, Tr. R. Buddhadasa, Colombo, 1960, p.33.

<sup>3</sup> *Ibid*, p. 42-43, *Susruta Samhitā*, Tr. R. Buddhadasa, Colombo, 1962, p.540-543.

<sup>4</sup> *Ibid*, p. 42-43, *Susruta Samhitā*, Tr. R. Buddhadasa, Colombo, 1962, p.540-543.

<sup>5</sup> *Arthasāstra of Kautilya*, ed. R.P. Kangle, Part II, Delhi, Reprint, 1986, pp.186-187.

hundred of whom were entrusted with cleaning the sewers of the city, one hundred and fifty entrusted with removing dead bodies from the city and one hundred and fifty assigned to maintain graveyards.<sup>6</sup> These figures and the period to which they can be applied leave room for debate. Nevertheless it is certain that at least when the *Mahāvamsa* was written in the sixth century A.D., health care in the capital city was well organized.

The remains of the ancient cities of Anuradhapura, Sigiriya and Polonnaruwa, too, clearly demonstrate the attention paid to the environment, sanitary conditions and health care. Water management in the environs during monsoon rains, the supply of water to the cities, the sedimentation and filtering techniques adopted in ponds and canals, the discharge of used water out of the cities as well as garbage and refuse disposal had undoubtedly been arranged according to a set plan in each of these cities.

The techniques of the construction of toilets and lavatories developed over several stages. A highly developed stage in this process is discernible in the constructions at the Abhayagiri complex in Anuradhapura and at the Baddhasīmāpāsāda and the Ālāhana Parivena hospital complex in Polonnaruwa. The toilets and baths at Abhayagiri have been constructed at a distance from the residences of the monks while those at the Baddhasīmā Pāsāda; and the Ālāhana Parivana hospital complex have been built adjoining the residential quarters of monks. Extra toilets with ring-well pits have been built in the periphery of the hospital, most likely for the use of staff and visitors.

At both monasteries liquid passing through urinals was diverted into pits along terracotta pipes. In the urinary pits at Abhayagiri, large bottomless clay pots of decreasing size have been placed one above the other. There are signs that these pots contained sand, lime and charcoal through which urine filtered down to the earth in a somewhat purified form. There had been seven pots in certain pits but the number had been fewer in some others. The pots had been vertically fixed together with a mixture of cement and clay. These urinary pits point to the attention paid by construction engineers to the details of sanitary care and environmental protection.

Water and urine have been diverted from the toilets of the Baddhasīmā Pasada at Polonnaruwa through terracotta pipes into a separate septic pit while excreta was diverted to another septic pit. The toilets and lavatories at the Madirigiriya monastery were located at a considerable distance from the residential quarters and the hospital complex.

<sup>6</sup> *The Mahāvamsa*, X, 91-93.

## Hospitals

The archaeological evidence as well as references in chronicles and literature indicate the existence of four types of hospitals during the period of the Rajarata civilization. Their gradual growth cannot be traced in stages but it is certain that they had reached a fairly advanced stage towards the late Anuradhapura period.

These hospitals can be broadly divided into four categories, viz., (a) monastic hospitals where in-house treatment was provided for ailing monks for short or long periods; (b) hospitals for laymen where in-house treatment was provided; (c) maternity homes; and (d) hospitals where only outdoor treatment was provided.

Of these, a substantial amount of archaeological data is available pertaining to hospitals attached to monasteries. The remains of hospitals at Mihintale, Anuradhapura, Madirigiriya, Dighavapi and Dombegoda near Maligāvila can be dated to the late Anuradhapura period. Those of the hospital at the Alahana Parivena complex at Polonnaruva can be assigned to the twelfth century. Besides these, the chronicle refers to a hospital for monks outside the city of Anuradhapura constructed by the Commander-in-Chief of the army during the reign of Mahinda IV (956-972).<sup>7</sup>

The restored foundation indicates that the Mihintale hospital was a 68.6 m x 38.1 m. rectangular building. The main entrance to the building was in the south. As one enters the building, on the right hand side there is a 5.18m x 4.27m. room. This may have been used as a dispensary. The large hall seems to have been the waiting hall of the patients. To the left and north of this hall are two rooms presumably used for examining patients. Beyond was the inner court, at the centre of which are found signs of an image house. Around the inner court was a corridor leading to 32 residential rooms for in-house patients. Each of these measures 3.96 m x 3.96 meters. The doors of all these rooms have been placed facing the image house. Presumably the resident monks meditated around the image house in the mornings and evenings. To the north-east of the building is a stone paved room where a medicinal trough externally measuring 213 x 74 x 60 centimetres used for immersion therapy was placed. This room could be entered through a door from the eastern corridor near the rooms of the patients as well as from outside the building through a door in the east. There had also been a *jantāghara* or a room where steam and hot water therapy was administered in the hospital building. The remains of a separate building, which could be the kitchen of the hospital, are visible in the northern side beyond the hospital.

<sup>7</sup> *The Mahāvamsa*, LIV, 52-53.

Pieces of two large containers have been found in excavations done in 1954 at the Mihintale hospital complex. These pieces have been fitted together and the containers, which are of West Asian origin, are now displayed in the Anuradhapura museum. As some cement paste had been applied to the interior of these containers to make them leak-proof, it can be reasonably concluded that they had been used to store medicines at the hospital. Unfortunately, the exact location of the hospital where these have been excavated has not been recorded. If this had been done, it would have been easier to identify the storage room of the hospital.

The remains of the ancient Madirigiriya hospital are found about 50 meters to the north of the famous Madirigiri Vatadage in Tamankaduva in the Polonnaruwa District. This hospital is small in size when compared with the one at Mihintale. The foundation, which has been restored, suggests that it was a 15.8m x 15.8 m square building. Encircling the centre court of the building is a corridor and beyond that are the rooms of the inmates. The stone trough used for immersion therapy is now kept near the image house about 67 metres to the north of the hospital. The trough has been moved there by the Department of Archaeology for safekeeping. The external length of the trough is 230 centimetres and the breadth is 64 centimetres. The height is 58 centimetres.

Near the Thuparama stupa at Anuradhapura, vestiges of a yet another hospital with a medicinal trough in situ are visible. As at the Madirigiriya hospital, here, too, the main entrance is through a door located in the eastern side of the building. The foundation of the building has not been preserved well, but existing remains indicate that, as at Mihintale, a centre court around an image house and rooms for inmates were important aspects of this hospital.

The Ruvanvali Stupa complex contains vestiges of another hospital attached to the Mahavihara. The distance from the outer wall of the stupa to the hospital is approximately 46 meters. The stone medicinal trough (externally measuring cm. 224 x 75 x 60) found in situ is identical with that of the Thuparama hospital and there are signs of an image house and rooms for inmates. However, the area is full of various other ruins belonging to different eras and therefore a correct picture of the plan of the hospital has not emerged so far.

The foundations of the hospitals at Dighavapi and Dombegoda have not been preserved well. But the layout of the hospital at the Ālāhana Parivena complex at Polonnaruwa has been restored by the Cultural Triangle in 1982. The restorations indicate that it was smaller in size than the Mihintale hospital. The total length of the building is 44.8 meters. The breadth is 33.3 meters. The rooms of the inmates are of varying sizes and each of them seems to have accommodated a number of inmates. There had been an image house at the centre of the courtyard facing these rooms. Unlike in other hospitals, the baths and toilets for the inmates had been constructed adjoining their rooms.

There had been two entrances to the hospital from the east and the south. The southern door led into a 9x4 meter room. The stone trough externally measuring 248x80x56 cm. had been placed on the left of the room. The granite paved ground of this room has been sloped towards the north and water that led from it has been diverted into a drain. The stone trough is slightly different from those at Mihintale and Anuradhapura but bears a close resemblance to the one at Madirigiriya. The cavity in which the patient was laid and the complete granite structure has been scooped out in the form of a human being both at Madirigiriya and Polonnaruva.

Several common features are discernible in all these hospitals. Walls had been erected around all of them so that they were isolated from the rest of the buildings in the monastic complexes. All the hospitals had been located in easily accessible plains. Similarly, constructions have been designed to allow maximum ventilation in the buildings.

As stated earlier there is a dearth of archaeological material pertaining to hospitals for laymen. A reference in the *Mahāvamsa* suggests that there were eighteen hospitals at the time of Dutthagāmani (161-137 B.C).<sup>8</sup> The chronicle also refers to the construction of hospitals in the reigns of Buddhādāsa (337-365 A.D), Upatissa I (365-406 A.D.), Mahānāma (406-428 A.D.), Dhātusena (455-473 A.D.), Udaya I (797-801 A.,D.), Sena I (833-853 A.D.), Sena II (853-887 A.D.), Kāshyapa IV (898-914 A.D.), Kāshyapa V (914-923 A.D.), Mahinda IV (956-972 A.D.) and Parākramabāhu I (1153-1186 A.D.).<sup>9</sup>

The inscriptional evidence confirms some of these constructions. The Kukurumahandamana Pillar inscription datable to the reign of Kashyapa IV refers to immunities granted to a land belonging to the hospital built by the Commander-in-Chief named Sen near the Ceremonial Street of the inner city of Anuradhapura.<sup>10</sup> A slab inscription found at Abhayagiriya datable to the reign of Kashyapa V refers to a royal hospital (*Rajvedhala*) built by the king along the same street.<sup>11</sup> The Dorabavila Pillar inscription mentions grants made to the same hospital. It is reasonable to conclude that at least some of the above mentioned hospitals were residential hospitals for laymen.<sup>12</sup>

The sources contain several references to maternity homes. The Pandukabhaya legend of the *Mahāvamsa* refers to the construction of a building

<sup>8</sup> *The Mahāvamsa*, XXXII, 38.

<sup>9</sup> *The Mahāvamsa*, XXXVII, 145-147; 182-183; 211-212, XXXVIII, 42-43; XLIX, 19-20; L, 75-76; LI, 75-76; LII, 25-26; 57-58; LIV, 53-54; LXXIII, 34-54.

<sup>10</sup> *Epigraphia Zeylanica*, II, no. 5, p.22.

<sup>11</sup> *Epigraphia Zeylanica*, I, no.4, p.41.

<sup>12</sup> *Epigraphia Zeylanica*, no.25, p. 294.

known by the term *Sivikāsālā*,<sup>13</sup> According to the *Vamsatthappakāsini*, the commentary on the *Mahāvamsa*, it was either a hall where a Siva *Linga* had been placed or a maternity home.<sup>14</sup> This indicates that at the time of the writing of the *Mahāvamsa*, there had been state maternity homes. Nevertheless, references in the chronicles and literature to ordinary women or royal princesses entering lying in homes (*vijāyanaghara*, *timbirige*) should not be construed to mean that they entered common maternity homes for confinement. The tradition of segregating the expectant mother on the eve of delivery in a dark room in her own house, which was prevalent in ancient Sri Lanka, continues in rural areas even at present. Moreover, it is most unlikely that in a semi-feudal ancient society the expectant princesses of royal households were sent to common maternity homes for giving birth to children.

Nevertheless, there are at least two references which clearly point to the existence of public maternity homes in the country. The chronicle mentions the construction of maternity homes, *Pasavantinamsālā* by king Upatissa I (365-406 A.D.).<sup>15</sup> An inscription set up during the reign of Kashyapa IV (898-914 A.D.) refers to the construction of a maternity home (*timibirige*) by Senal Nākan, Chief Secretary of the state.<sup>16</sup> According to this inscription, several plots of land from an area to the north of Anuradhapura had been allocated for the upkeep and maintenance of this maternity home.

There were several places where treatment was provided for outdoor patients. Some of the hospitals erected by kings and key officials referred to in the chronicles and inscriptions would have been hospitals for out-patients. Even hospitals to which patients were admitted for treatment consisted of out-patients' divisions as well. These establishments for dispensing medicine were known by the term *behetge*.

The Kiribatvehera Pillar inscription belonging to the reign of Kashyapa IV (898-914 A.D) records donations made to a dispensary (*behetge*) named Bamunu Kumbara.<sup>17</sup> The Vessagiri Slab inscription of Dappula IV (924-935), too, contains some information on a *behetge*.<sup>18</sup>

Archaeological remains at the Arankale monastery in the vicinity of Hiripitiya close to Wariyapola suggests the existence of a large out-door patients' hospital, possibly datable to the late Anuradhapura period. The length of the

<sup>13</sup> *Mahāvamsa*, X, 102.

<sup>14</sup> *Vamsatthappakāsini*, ed. G.P. Malalasekara, P.T.S., London, 1935, p. 296.

<sup>15</sup> *Mahāvamsa*, XXXVII, 182-183.

<sup>16</sup> *Epigraphia Zeylanica*, III, p. 276-277.

<sup>17</sup> *Epigraphia Zeylanica*, I, no.11, p.153-161.

<sup>18</sup> *Epigraphia Zeylanica*, I, p.38.

foundation of this hospital which has been restored is 26.1 metres. Its breadth is 12.2 metres. Unlike in the hospitals at Mihintale, Madirigiriya, etc., there are no signs of the existence of rooms for inmates or of a medicinal trough in this location. On the other hand, large grinding stones, pestles used horizontally and vertically and nearly sixty furnaces or kilns in situ suggests that Arankale *behetge* was a place where medicines were prepared and dispensed to a large number of outdoor patients and perhaps to dispensaries around the country. The grinders are worn in the middle, suggesting that they had been used for a long time.

### Hospital Management

The limited sources available provide several clues on the management of hospitals. These indicate that the monastic hospitals were managed by monasteries themselves while the state accepted the responsibility for maintaining the majority of the other hospitals. The references to the construction of hospitals, grants made to them and payments made to their employees and occasional donations to patients suffering from various illnesses by successive kings portray a sketchy picture of the involvement of the state in health care. Among the kings who patronized the health sector in various ways, the chronicles have made special reference to Dutthagamani (161 B.C. – 137 B.C.), Buddhādāsa (337-365 A.D.), Upatissa I (365-406 A.D.), Silākāla (518-531 A.D.), Aggabodhi VII (772-777 A.D.), Kashyapa V (914-923 A.D.), Mahinda IV (956-972 A.D.) and Parakramabahu I (1153—1186 A.D.).<sup>19</sup>

Some kings not only patronized the health sector, but also engaged themselves in research on aspects of medicine; for example, in order to test their efficacy Aggabodhi VII (772-777 A.D.) conducted research on the medicinal plants of the island.<sup>20</sup>

Likewise, some important officials in the king's administration displayed a keen interest in health care. The earlier mentioned Kukurumahandamana Pillar inscription and the Dorabawila Pillar inscription are good examples of the patronage extended by such officials.<sup>21</sup>

The occasional references to the construction of hospitals by individuals such as the one constructed by a person named Doti Valakna during the reign of Kashyapa V (914-923 A.D.)<sup>22</sup> provide no clues to the maintenance and administration of such privately constructed hospitals. The monastic hospitals

<sup>19</sup> *The Mahavamsa*, XXXII, 38; XXXVII, 145-147; 182-183; XLI, 29-30; XLVIII, 72-73, LII, 57-58; LIV, 53-54; LXXII, 34-54.

<sup>20</sup> *The Mahavamsa*, XLVIII, 72-73.

<sup>21</sup> *Epigraphia Zeylanica*, II, no.5; p.22, V, no.25, p. 284.

<sup>22</sup> *Epigraphia Zeylanica*, IV, p.34.

were maintained and managed by the monasteries themselves. The Mihintale Tablets of Mahinda IV (956-972 A.D.) indicate that the employees of the Mihintale monastic hospital were remunerated out of the resources of the same monastery. Among rules and regulations as well as remunerations made to employees, these tablets refer to payments made to the chief physician (*veda*) and to a physician known as *puhudā veda* of the Mihintale hospital.<sup>23</sup> As the main monasteries owned extensive property, such payments were not a burden on these institutions. Besides, various kings and individuals made land grants and other donations to hospitals within the main monastic complexes. The physicians were known by the term *veja* or *veda* in the days of the Rajarata civilization. The pre-Christian cave inscriptions at Picchandiya, Mangul Maha Vihara and Rajangana inform us that physicians (*veja*) donated caves to the Buddhist Sangha.<sup>24</sup> Cutting drip ledges on the faces of the caves so that they could be utilized as residences for monks involved the mobilization of material and human resources. The fact that physicians could donate caves clearly indicates that they had a good standing in society from the pre-Christian era.

The Madirigiriya Rock inscription of Kashyapa IV (898-914 A.D.) and the Mihintale Tablets of Mahinda IV (956-972 A.D.) contain information on employees of hospitals.<sup>25</sup> The chief physician of the hospital was known as *mahavedanā*, and ordinary physicians, as *veda*. The term *suluvedanā* denoted a physician of a lesser standing while the term *puhudā vedā* indicated a physician who used leeches for curative medicine presumably to suck impure blood from a wound. Some of the chief physicians were involved in hospital administration as well and they were identified as *vedhal samdaruvan*. The *vedhal kudin* and *vedhal kamiyan* were the middle level employees, while the term *behedvariyan* was applied to those who helped in the preparation of drugs. The minor employees were *vedhal dasun*. Those who dispensed medicines to patients were known as '*odotuvan*'. At least once a year all the hospitals were inspected and their work was supervised by *radol samdaruvan* or officials of the king.

The Madirigiriya Rock inscription also sheds light on management of the hospitals. It states that officers of the hospital should not utilize the services of hospital employees for cultivating land allocated to the hospital. Neither should they themselves cultivate such land. They were also prohibited from accepting presents and bribes from employees. Obtaining services for the preparation and dispensing of medicines from any person other than the employees detailed specifically for those services (*behed variyan*) was prohibited. If there had been disputes among those

<sup>23</sup> *Epigraphia Zeylanica*, I, p.75.

<sup>24</sup> *Inscriptions of Ceylon*, vol.I.ed. S. Paranavitana, Colombo, 1970, p.51, p.83, p.98.

<sup>25</sup> *Epigraphia Zeylanica*, vol VI, pt.1. pp.49-50, vol.I, p.75-76.

who cultivated hospital land, the officers and employees of the hospital were expected to jointly settle such disputes. When fishing was detected in reservoirs considered sanctuaries for fish, the catch of fish was to be appropriated for the use of the hospital. Employees who flouted the rules and regulations were to be punished, the severest punishment being the discontinuance of their employment in the hospital.<sup>26</sup> Dead goats and fowl in the surrounding lands were to be handed over to the hospital<sup>27</sup> probably for research purposes or for the preparation of medicinal drugs. It is most unlikely that the goats or fowls that had died of natural causes were used as food for the inmates of the hospital.

### Diseases and Treatment Methods

The ancient texts refer to many kinds of illnesses caused by the disturbances of the wind (*vāta*), bile (*pitta*) and phlegm (*slesma*). Of these, there were several kinds of fevers, and the chronicles indicate that some of them were contagious. Fatalities from such contagious diseases are referred to in the reigns of Siri Sanghabōdhi (247-249), Upatissa I (365-406), Kāshyapa IV (898-914) and Kāshyapa V (914-923).<sup>28</sup>

Several forms of treatment were practised in ancient Sri Lanka. Initially these were based on the North Indian *Ayurveda* system, but later on the South Indian system of *Siddha* medicine also came into vogue. With Muslim influence, the *Yunani* system, too, played a role in curative medicine, particularly among the Muslim community who established trading posts in the coastal areas in the thirteenth, fourteenth and fifteenth centuries. The oral administration of drugs, external applications, inhalation, fomentation, suction of poison, bandaging, steam and hot water therapy, immersion therapy and surgery were some of the curative methods used for different kinds of illnesses. Resorting to rituals for curing diseases also existed side by side with other forms of treatment, but there were at least a few in society who considered them as base and primitive (*gupta vidyā*).

Among these methods of treatment, immersion therapy, hot water and steam therapy and surgery deserve special attention. The granite receptacles carefully scooped out to conform to the contours of the human body found in almost all ancient hospital complexes, have been used for immersion therapy as prescribed in texts such as the *Caraka Samhitā*, *Susruta Samhitā*, *Samantapāsādikā*, *Yōgarnavaya and Prayogaratnāvaliya*. Immersion in *droni* or receptacles filled with heated milk, essence of meat, vegetable stock, oils, vinegar, ghee, etc., has been recommended in

<sup>26</sup> *Epigraphia Zeylanica*, vol. VI, pt. I. pp. 49-50.

<sup>27</sup> *Epigraphia Zeylanica*, vol II, p.28.

<sup>28</sup> *The Mahāvamsa*, XXXVI, 82-83; XXXVII, 189-190; LII, 25-26; 77-78.

the Ayurveda texts for a variety of illnesses such as skin diseases, fevers, haemorrhoids, fractures as well as for post-surgical care.<sup>29</sup>

The ruins of buildings known as the *Jantāghara* constitute hard archaeological evidence which confirms the practice of hot water or steam therapy (*svēda*) referred to in the Pali texts *Majjhimanikāya*, *Abhidānapadipikā*, *Pāli Mukta Vinaya Vinicca Sangraha* and also the Indian and Sri Lankan Ayurvedic texts. Individual patients could use this therapeutic form with the help of an attendant without the supervision of a physician. The heating of body with steam, or bathing in hot water after application of medicines in order to intensify perspiration, were important aspects of this form of therapy. Some of the best examples for well preserved foundations of *Jantāgharas* can be seen behind the famous Samādhi statue at the *Abhayagiri* monastery and at the Arankale monastery. A *Jantāghara* consisted of a central cistern with a ledge. This ledge was used as a seat for the person who was bathed by one or more attendants. Hot water and steam were generated in the site itself and there were well laid-out drainage systems for waste water.

The surgical skills of King Buddhādāsa (337-365 A.D.) to whom the authorship of the well known medical treatise *Sararthasangraha*, has been ascribed, are illustrated in the legendary tales found in the chronicle.<sup>30</sup> The fifth century commentary *Visuddhimagga* of Buddhaghosa while explaining the tenfold skills required for concentration of mind, cites the manner in which persons are trained in surgery. It states that a skilled student who has developed concentration of mind uses the scalpel on a lotus leaf in a dish of water, and leaves the scalpel mark without the leaf being pushed under water, whereas the one who has not been trained in the concentration of the mind is scared even to touch the scalpel.<sup>31</sup> A Sinhala text datable to a period between the eleventh and the thirteenth century, the *Karmavibhāga*, contains a clear reference to foetology. While describing the sufferings a human being has to undergo at birth, this text states that the foetus will be torn to pieces with sharp instruments if it assumes a transverse position at the time of birth.<sup>32</sup> These textual references to surgery have been corroborated by the discovery of probes, forceps, scissors, scalpels and a lance at the Polonnaruva

<sup>29</sup> For all details see: R.A.L.H. Gunawardena, "Immersion as Therapy", *The Sri Lanka Journal of the Humanities*, IV, nos. 1&2, 1978, pp.35-49.

<sup>30</sup> *The Mahāvamsa*, XXXVII, 112-171.

<sup>31</sup> *Visuddhimagga*, ed. G.A.F. Rhys Davids, P.T.S., London, 1929, p.136; For details, P.V.B. Karunatilaka, *op.cit.*

<sup>32</sup> *Karmavibhāga*, ed. Madauyangoda Vimalakitti and Nahinhe Sominda, Colombo, 1961, p. 140; For details see R.A.L.H. Gunawardena, "Obstetrics and Theories of Reproduction in Ancient and Early Medieval Sri Lanka," *Kalyani*, III, 1984-1985, pp.1-21.

hospital complex datable to the twelfth century. They have been made out of bronze or iron with a small percentage of steel.<sup>33</sup>

In a discussion on health care, some reference needs to be made to veterinary care as well. The *Mahāvamsa* story of the war between Dutthagāmani and Elāra states that in the battle of Vijitapura, the soldiers of Elāra poured molten pitch on the Kandula elephant, and that the wounds were immediately treated by veterinarians.<sup>34</sup> King Buddhādāsa (337-365 A.D.) appointed veterinarians for treating elephants and horses while he himself cured a diseased cobra and a horse.<sup>35</sup> The commentary, *Papancasūdani*, written by Buddhaghōsa in the fifth century A.D., states that a clever herdsman ought to be able to remove fly-eggs (*āsātika*) from the wounds of animals under his care and to cleanse and fumigate cow-pens regularly in order to dispel insects.<sup>36</sup> King Parākramabāhu I (1153-1186) is said to have cured a crow suffering from an ulcer that had formed in its cheek.<sup>37</sup>

These instances demonstrate that the care taken over the health of animals was as well organised as that of humans in the days of the Rājaraṭa civilization.

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<sup>33</sup> L. Prematilaka and A. Aluvihare, "Ancient Hospital Systems of Sri Lanka", *Sri Nāgābhinandanam*, Dr. M.S. Nagaraja Rae Festschrift, ed. L.K. Sirinivasan and S. Nagaraju, Bangalore, 1995, pp. 765-781.

<sup>34</sup> *The Mahāvamsa*, XXV, 26-31.

<sup>35</sup> *The Mahāvamsa*, XXXVII, 112-131; 141-148.

<sup>36</sup> *The Papancasudani: Majjhimanikāyatthakathā of Buddhaghōsācariya*, ed. J.H. Woods and D. Kosambi, Pt. II, P.T.S., London, 1928, P.258-261.

<sup>37</sup> *Cūlavamsa*, LXXIII, 49-54.