



SRI LANKA DENTAL JOURNAL

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- * Oro-facial infections due to parasites
- * History of physiology
- * Wear resistance of composites
- * Oral health behaviour of dental students
- * 19th A.P.D.C -1997
- * Full contents on page 1

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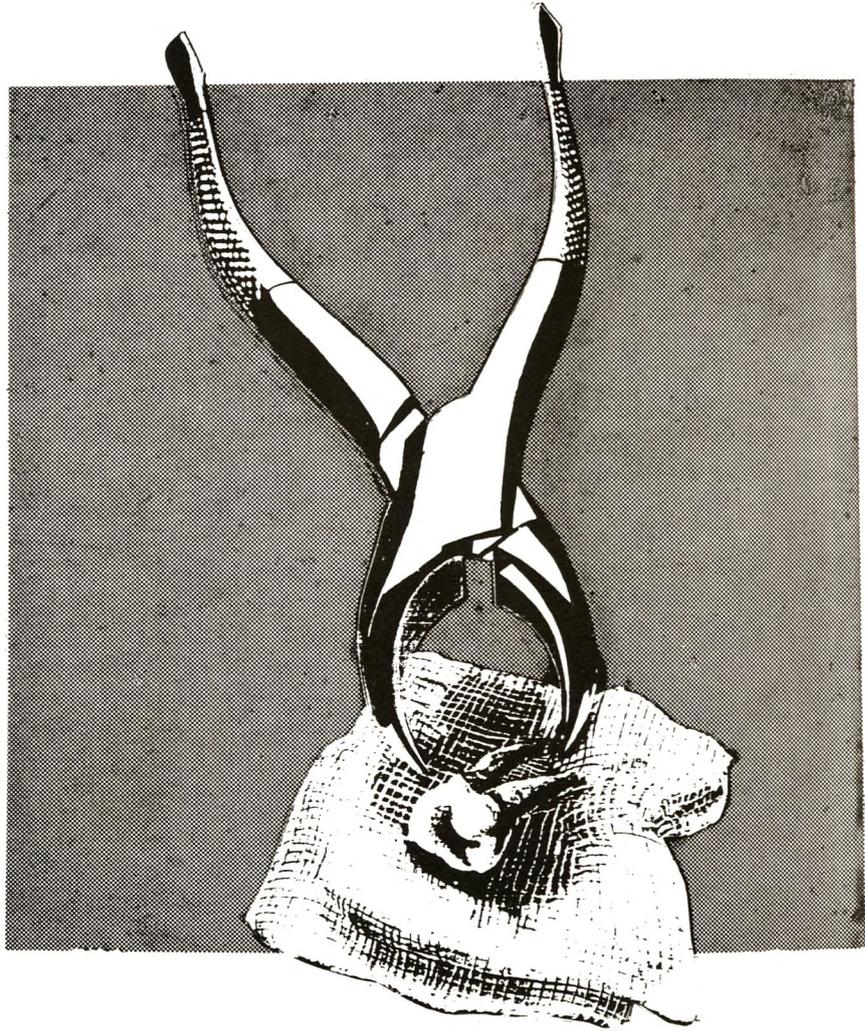
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CONTENTS

	Page
<i>Editorial</i>	3
Leading Article	
<i>Oro-facial infections due to Parasites</i>	
<i>J.Sarath Edirisinghe</i>	5
Review	
<i>History of Physiology</i>	
<i>I.P.Goonewardene</i>	10
Papers	
<i>Wear resistance of Composites- An in Vitro Study</i>	
<i>D.I. Amaratunga, Y.Tani, A. Ishikawa, T.Togayo</i>	16
<i>Oral Health Status, Treatment Needs and Oral Health Behaviour in First Year Dental Students</i>	
<i>S.L.Ekanayake and A.J.Pitigala Arachchi</i>	25
Short Report	
<i>Report of Activities of the Sri Lanka Dental Association-1996/1997</i>	
<i>Kumar Warnakula</i>	29
<i>Standing Committee Reports</i>	35
News and Views	
<i>19th Asia Pacific Dental Congress and Trade Exhibition -April 1997</i>	41
<i>Instructions to Authors</i>	62

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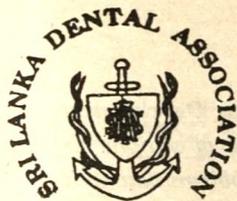
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EDITORIAL

After the APDC

The 19th APDC was successfully held in Colombo in April 1997. It is now time to think of what we as SriLankans have achieved through the APDC and how we can transfer the benefits to the Dental Community and to the people of Sri Lanka.

The achievements through the 19th APDC in fact are numerous. In addition to the development of skill of organizers in organizing Seminars and Congresses through this mega event, the most important achievements can be categorized into two groups. Firstly, there was professional development which includes the developments of knowledge and skill of the Dental Community. Secondly, there was a financial achievement for the national association.

What ever advancement we as members of the dental profession have made in knowledge and skill in various disciplines in dentistry should be used in our own professional practices and as well to improve the quality of treatment provided to the patients. This is necessary both in the government and the private sector and as well in the armed forces. It is note worthy here that Sri Lankans were not totally unaware of modern trends in dentistry. Many if not most possess modern equipment. Most are well informed of the modern treatment methods and are very skilful. For example, the private sector of the profession has brought the services of Implantology to our country since September 1996. It is hoped that General Dental Practitioners, Prosthodontics and Oral Surgeons will start practicing this speciality very soon. Through various seminars, workshops and lectures organized by the SLDA and other organizations we are continuing our dental education and thus are updating our knowledge regularly. But the APDC created a large opening through which most of the Sri Lankan Dental Surgeons were exposed to world renowned teachers in almost all disciplines of dentistry there by updating the knowledge of all those who participated and this brought them on par with any community of dentists from any part of the world. It should also be mentioned that there were notable absentees from the local dental

community for this mega dental event. It is unfortunate that they do not realize the value of updating their knowledge and skill to meet the demand for modern dentistry in Sri Lanka

Now it is necessary to consolidate on the foundation built at the 19th APDC. The next committee of the SLDA has an enormous task to perform in this connection. It is very important that an effective training programme should be planned to get the Sri Lankan Dental Surgeons to revise what they learnt and to have some hands on workshops to develop their skill. These programmes should essentially be short and comprehensive ; for example a two day workshop on Endodontics, Prosthetics, Orthodontics or Minor Oral Surgery at the Dental Faculty, Dental Institute or other base hospital for a small group at a time would be very useful. This could be organized by the SLDA, GDPA or any other College. The participants should be charged to pay Lecturers and Instructors. It will be helpful to have such workshops periodically.

It is also time to think about the large number of Dental Surgeons qualifying each year. Steps should be taken to

encourage them to get into private practice. Development of their clinical skill, capital for purchase of equipments and set up of a practice are important problems that need urgent attention.

Another problem is skilful Dental Surgery Assistants and Dental Technicians are very difficult to find in this country. The professional standard of Dental Technicians in Sri Lanka are far below the international standard even in mere plastic denture work. Modern prosthetic equipment and materials are not even marketed in Sri Lanka. The Dental Surgery Assistants working in most government and private clinics can only mix some materials and fill syringes, but are poorly trained and most are useless when the Dental Surgeon encounters and emergency. Therefore, Training Dental Technicians and Surgery Assistants on a proper curriculum is urgently needed and without further delay government and private institutions should be set up for this purpose. Regulations should be brought in with regards to working conditions of both Dental Technicians and Surgery Assistants. Without taking such measures, hope of bringing standard of dentistry practiced in Sri Lanka to international levels would be futile.

Oro-facial Infections due to Parasites

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Summary

Oro-facial infections due to parasites are uncommon in the Asian region. There are many countries, outside this region, where oro-facial infections due to parasites are a common occurrence. One example is the severe mutilation of the buccal cavity due to extensive destruction of the associated cartilage in Mucocutaneous Leishmaniasis in South and Central America.

Only a few species of parasites directly affect the buccal cavity and its associated structures. Some haemoflagellates such as *Leishmania braziliensis* attack mucocutaneous junctions selectively while several species of helminth parasites cause oro-facial lesions randomly as part of a generalized process of dissemination. Some of the parasites of the oral cavity are non-pathogenic while others cause serious pathological lesions. The parasites discussed in this presentation include *Entamoeba gingivalis*, *Trichomonas tenax*, *Leishmania braziliensis complex*, *Leishmania tropical*, *Trypanosoma cruzi*, *trypanosoma brucei* group, *Dirofilaria (Nochtiella) repens*, *Onchocerca volvulus*, *Demodex folliculorum*, *Demodex brevis* and other arthropod infections.

Key Words - Oro-facial, Infections, Parasites, Protozoans, Helminths

Introduction

Dental Surgeons of the Asian region rarely come across parasitic lesions of the oral cavity and its associated structures. However, in the South and Central American regions, where Mucocutaneous Leishmaniasis is prevalent, oro-facial surgeons often collaborate with general and plastic surgeons in restorative surgery of the oral cavity and the surrounding area to alleviate suffering

and to save lives. Several species of parasites cause oro-facial lesions in the Asian region including Sri Lanka. Many of these are detected by general surgeons.

Some of the parasites of the buccal cavity are non-pathogenic. The range of pathogenic species that could directly affect the buccal cavity and its associated structures is limited. Parasites belonging to two Orders, namely the *Kinetoplastida* and *Spuririda* are the ones commonly affecting the oro-facial region. The parasites involved are the haemoflagellates which are protozoans and the helminths which are metazoans. Some haemoflagellates selectively attack the mucocutaneous junctions and rapidly destroy the surrounding tissue while oro-facial infections with helminth parasites form part of a generalized dissemination in the body without selectivity. For convenience sites of infection could be grouped into three anatomical regions: 1) buccal cavity and its associated structures, 2) face and 3) neck regions, all falling within the traditional domain of the Dental Surgeon. In this presentation parasites affecting the buccal cavity and its associated structures are described in detail while parasites affecting the face and the neck regions are described briefly.

1. Parasites of the Buccal Cavity and Its Associated Structures

Parasites, both non-pathogenic and pathogenic are associated with the buccal cavity. Protozoan parasites of the buccal cavity are non-pathogenic and belong to the *Phylum Sarcocystophora*.

Non-Pathogenic Parasites

- 1.1) *Entamoeba gingivalis* (Gros, 1849) Brumpt, 1913
 - **Phylum** - *Sarcocystophora*.
 - **Order** - *Amoebida*

Historical and geographical notes

This was the first parasitic amoeba to be described. The discovery was made by GROS in 1849 who found it in the soft tartar between teeth. The detailed description of the parasite was made by von Plowazek in 1904. The parasite is prevalent in all populations where careful search has been made (Beaver et al 1984).

Morphology, biology and life cycle

Only the trophozoite stage is known. It measures 5-15 um in diameter and is morphologically similar to *Entamoeba histolytica* which causes amoebic dysentery. The endoplasm contains ingested bacteria, partly digested host leucocytes and rarely red blood cells. The nucleus has a central karyosome with closely packed chromatin granules along the inner surface of the nuclear membrane.

It lives in the gingival tissue around teeth. It thrives well when there is associated Pyorrhoea Alveolaris. It can also thrive on unclean dental plates. Occasionally the amoeba is found in the crypts of the tonsils. In the absence of cyst formation, transmission is mainly by droplets, intimate contact such as kissing and by way of contaminated drinking utensils.

There are no specific symptoms or signs attributable to this organism. The amoeba can be demonstrated in material removed from the gingiva or dental plates. It is found closely associated with *Trichomonas tenax*, oral spirochetes, fusiform bacilli and sometimes with monilia.

No specific treatment is necessary but improvement of oral hygiene leads to elimination of the parasite.

1.2) *Trichomonas tenax* (O.F.Muller, 1773) Dobell, 1939

Phylum - *Sarcomastigophora*

Order - *Trichomonadida*

Historical and geographical notes

The organism was first observed by Muller in 1773 in an aqueous culture of tartar from teeth. It was Hoffer in 1850 who isolated the organism directly from the human mouth.

Morphology, biology and life cycle

It is a pear shaped flagellate known only in the trophozoite stage. It measures 5 - 12 um in length and has 4 free flagella at the anterior end. The 5th flagellum is along the free border of the undulating membrane which extends beyond the middle of the body. The axostyle extends throughout the length of the body and projects beyond the posterior end of the organism. A large nucleus is situated in the anterior part of the body. It is similar to *Trichomonas vaginalis*, a common parasite of the vagina and the male urethra except for the smaller size and length of the undulating membrane. The organism feeds on microorganisms of the environment. It grows well at room and body temperatures but does not survive passage through the intestinal tract (Beaver et al 1984). Transmission is similar to that of *Entamoeba gingivalis*.

It is a non-pathogenic organism of the mouth Living in tartar, cavities of carious teeth, necrotic material on gingival margins of the gums and tonsillar follicles. It is also known -to be associated with spirochetes in Vincent's Angina. Diagnosis is by demonstration of the parasite in material from above mentioned sites. No specific treatment is indicated. The organism is eliminated by improvement of oral hygiene.

Pathogenic Parasites

1.3) *Leishmania braziliensis* Complex

Phylum - *Sarcomastigophora*

Order - *Kinetoplastida*

Historical and geographical notes

Shortly after the Spanish conquest of Peru, the invaders developed mutilating lesions of the nares and the buccal cavity while similar lesions were uncommon among the natives. Lindenberg, Carini and Paranhos found the amastigotes in the ulcers in 1909. Vianna in 1911 named the species *L.braziliensis*. Mucocutaneous Leishmaniasis is found scattered all over South and Central America.

Morphology, biology and life cycle

All parasites belonging to this complex are morphologically similar. The amastigotes have the typical 'dot and dash' appearance. Leishmaniasis is a vector borne

disease with sand fly (*Lutzomyia spp.*) as the vector. The amastigotes multiply by simple binary fission. When they enter the gut of the sand fly with the blood meal they transform into promastigote forms. With the next bite the sand fly transmits the promastigotes to the host in which they switch on to the amastigote forms. The organism can be cultured in Novy, Mac Neal and Nicolle's (NNN) medium. In culture the organisms are in the promastigote form (Warren and Mahmoud 1990).

Mucocutaneous leishmaniasis or Espundia causes mutilating lesions which are mostly resistant to treatment. Mucosal lesions appear 6 months to several years following primary infection. The initial lesion is a localized swelling in the lip region which ulcerates rapidly. Metastasis in the naso-pharynx and the larynx is common. Cartilage of the larynx and the face may be destroyed leaving bone intact. In some, two intersecting furrows are formed on the palate forming a cross. Patients suffer intense pain and interference with feeding leading to starvation. Diagnosis is by demonstration of the organism from the edge of the lesions. The material from these sites could be cultured in NNN medium. Treatment is with pentavalent antimony compounds (Pentostam). Some patients need drastic surgical procedures in order to save their lives.

1.4) *Dirofilaria (Nochtiella) repens* Railliet and Henry 1911

Phylum - Nematoda

Order - Spirurida

Historical and geographical notes

Dirofilaria repens is a natural subcutaneous filarial parasite of dogs in Europe, Africa, Russia, India, Viet Nam and Sri Lanka. The first human case was detected by Skrjabin and his co-workers in 1930 in USSR. Over 30 cases of human dirofilariasis have been reported from Sri Lanka (Dissanaike et al 1972, Dissanaike et al 1993).

Morphology, biology and life cycle

The longest worm found in man in Sri Lanka measured 13cm. The males are shorter and have caudal papillae which are asymmetrical. The worms have longitudinal

ridges on the cuticle. In histological sections they appear as regularly spaced low ridges. The diameter varies between 200 - um in males and 400 um in females. The microfilariae (mf) are found in the skin of infected dogs. Mosquitoes belonging to *Armigeres*, *Mansonia* and *Aedes* genera are the vectors in Sri Lanka. The mf enter the gut of the vector with the blood meal. The subsequent maturation and development into infective larva takes place in the body of the mosquito. These infective larvae entering the host when the vector bites, matures in the subcutaneous tissue and are often localized in nodules. The nodules formed by the adult worms are not specific to the buccal cavity but when found is part of a generalised dissemination process. These nodules have been described from many parts of the body, the commonest sites being the face and the neck. The author is aware of a patient who presented with a nodule on the lower left gum margin resembling an epulis (unpublished). Excision biopsy showed the typical appearance of *Dirofilaria repens* in histological section. The allergic reactions experienced by the patient often leads treatment with diethylcarbamazine which tends to localize the worm. When presented with a nodule, surgical excision is indicated. In many instances a live worm may be extracted. When the worm dies granuloma formation takes place inside -the nodule which subsequently leads to fibrosis.

1.5) *Larval stages of Taenia solium* (Pork tapeworm)

Parasites whose larval stages are found disseminated in the body may find their way to the buccal cavity and its associated structures. One example would be in severe disseminated cysticercosis following ingestion of *Taenia solium* (pork tapeworm) eggs where cysticerci may be found in the tongue. These appear as small nodules on the tongue.

2. **Parasitic Infections of the Face**

Parasitic infections of face are not uncommon. Majority of these parasites cause nodules or ulcers on the skin of the face. The large group of parasites causing lesions in the eye is excluded from this presentation.

2.1) *Leishmania tropica* (Oriental sore)

This parasite is similar to *L. braziliensis* but causes only cutaneous lesions. The parasite is prevalent in Southern

Europe, Middle East, Morocco, Algeria, Tunisia, Southern Russia. It has now been established that Cutaneous Leishmaniasis is present as a naturally occurring vector borne infection among the indigenous people of Sri Lanka (Athukorale et al 1992, Seneviratne et al 1995). The lesion starts as a small nodule at the site of sandfly (*Phlebotomus*) bite which eventually ulcerates. The ulcers are common on exposed parts of the body. Lesions on the face may be seen on lips, cheeks, eyelids or forehead.

2.2) *Trypanosoma cruzi* (Chagas disease, South American Trypanosomiasis)

The parasite is responsible for Chagas disease which is prevalent in South and Central America. The disease is transmitted by reduviid bugs. The initial lesion is at the site of bite of the bug which is usually on the exposed parts of the body. The bug prefers areas of skin close to mucous membranes, the commonest site being around the eyes. Bite wounds close to or on the lips are not uncommon. The initial lesion is a localized swelling known as a chagoma.

2.3) *Demodex folliculorum* *Demodex brevis*

These are arthropod parasites of man. *D. folliculorum* is found in the follicles of simple hairs above the level of the sebaceous glands. The habitat of *D. brevis* is the sebaceous glands of the vellus hairs. Both species are commonly found in the epidermis of the nose forehead and the regions close to the face. Both could be considered low grade pathogens as they feed on cells of the follicular epithelium and the sebaceous glands. Many infected individuals are asymptomatic but a few may show a rosaceous pruritus and fibrosis around the organisms. Some have incriminated *Demodex* for dermatitis of the scalp. Treatment with 1% gamma benzene hexachloride incorporated into a vanishing cream massaged into the affected area is effective (Beaver et al 1984).

2.4) *Dirofilaria (Noctiella) repens*

The skin nodules formed by this parasite (see above) may be found anywhere on the skin of the face.

2.5) *Onchocerca volvulus*

This is a filarial worm found in the skin nodules of man. The disease is endemic in many parts of Africa and South

America. The skin nodules may be found on the skin of face.

3. Parasitic Infections of the Neck

Several parasites cause lesions in the neck region. Parasites such as *Dirofilaria repens* and *Onchocerca volvulus* could form nodules in the skin of the neck. In addition to these, several parasites may cause cervical lymphadenopathy .

3.1) *Trypanosoma brucei* Group (African Sleeping Sickness)

Both *T. b. rhodesiense* and *T. b. gambiense* cause cervical lymphadenopathy during the early part of the infection.

3.2) *Toxoplasma gondii*

This is a coccidian parasite which could infect any nucleated cell of the body. In acquired toxoplasmosis cervical lymphadenopathy is a common feature.

3.3) Other Arthropod infestations

Skin nodules of the face and neck may be caused by larvae of certain Dipterous flies. *Cardylobia anthropophaga* ('The Tumbu Fly'), found in tropical Africa lays eggs in clothing contaminated with excreta. The eggs hatch into larvae which can penetrate unbroken skin when they come into contact. The furuncular swellings formed by the larvae may be found in the skin of neck, face or forehead.

Several species of *Calliphora* including *Chrysomya bezziana* lay eggs on wounds and natural orifices with foul foetid secretions. The maggots feed on moribund flesh and bones and at times may attack other healthy tissue. Such lesions may be found in the skin of face and neck.

Discussion

Parasitic infections in dentistry are uncommon. However increasing awareness of some parasitoses affecting the oro-facial region has encouraged Dental Surgeons to familiarize themselves with the few infection that they may be confronted with. Nodules due to *D. repens* are

mostly diagnosed by Eye Surgeons, General Surgeons, Pathologists, Parasitologists and General Practitioners (Dissanaike et al 1993). It is important for Dental Surgeons to be aware of this infection in Sri Lanka as it is no longer considered a rarity. The fact that the parasitic lesion could present as an epulis makes it imperative for Dental Surgeons to be familiar with the condition. The patients with lesions due to *L.tropica* usually end up with the Dermatologists. It is encouraging to note that there have been several referrals by Dental Surgeons of patients suspected of having *L.tropica* lesions. Health workers should be aware that Cutaneous L. eishmaniasis is now considered an indigenous parasitic infection. However the condition should always be suspected in Sri Lankan Middle East returnees who present with skin lesions on the lips, face and other exposed parts of the body (Naotunne et. al 1990). *Demodex* is often detected by Pathologists in biopsy specimens of the facial region. Cervical lymphadenopathy which may be due to parasites such as *T.gondii* may be detected by Dental Surgeons who routinely examine the area for enlarged lymph nodes. Recently a case of Myiasis due to *Cardylobia anthropophaga* was reported in a Sri lankan infant born in Zimbabwe (Edirisinghe and Rajapaksha 1991). Several exotic parasitic diseases have already been introduced to Sri Lanka by returning Sri Lankan travellers illustrating the impact of population movement on the distribution of parasitic diseases.

It is now known that opportunistic parasites which may cause no infection or mild subclinical infections in normal people could overwhelm the infected persons when they become immunocompromised. No studies have been carried out in recent times to determine the behavior of parasites hitherto classified as non-pathogenic under these circumstances. *E.gingivalis* and *T.tenax* fall within this group.

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History of Physiology : a brief review

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Summary

Physiology has been in the forefront of scientific research and during its evolution during the past four hundred years, has seen some remarkable and everlasting discoveries made, which have contributed much towards the welfare of the mankind. The History of Physiology can be traced back to the Aristotle's times over two thousand years ago. However, it was during the past two hundred years that it came onto its own as a scientific discipline and as an experimental science. The award of the Nobel Prize for Physiology or Medicine is ample testimony to the important place it occupies as a pioneering scientific research discipline.

Many prominent physiologists as well as reputed physiological laboratories in Europe and America are closely associated with its progress over the past century. It was in the early twentieth century that Physiology began to develop into several subdisciplines such as Gastroenterology, Endocrinology, Neurophysiology etc. It also contributed to the development of new basic sciences disciplines such as Biophysics during that period. However, with the new developments and experimental techniques in Physiology in the modern scientific era, the boundaries between the basic sciences including Physiology and the subdisciplines of Physiology are becoming blurred, breaking the one hundred and fifty years of departmental barriers in many research institutes and medical schools, paving the way for integrated and collaborative scientific research.

History of Physiology

Physiology is one of the oldest of the modern medical sciences and has contributed immensely towards the

development and research in medicine and related disciplines, while at the same time promoting the development of new scientific disciplines. The word 'physiologica' was first employed by Jean Fernel (1497-1558), who derived it from the Greek word 'physis' which is a loose translation of the word 'nature'.

The physiological ideas and applications can be traced back to the ancient Greeks, to the Hippocratic Corpus and to Aristotelian natural philosophy, although as a research and experimental science, Physiology began to develop towards the middle of the nineteenth century. From the late nineteenth century onwards, the discipline developed and diversified, leading to further subdivision of modern biomedical sciences. Biochemistry, Pharmacology, Neuroscience, Biophysics all owe their beginnings to the early scientists in Physiology.

In the ancient world, theories of life and living function were classified by two ways. Hippocratic writings (fifth to third centuries BC) emphasised the significance of the four bodily secretions: warm moist blood, moist cold phlegm, black bile, which is cold and dry and warm yellow bile. The fine balance between these and the outside elements of fire, water, earth and air accounted for the disposition of health or disease (Hall 1969). On the other hand Aristotle (384-322 B C) proposed that blood was produced in the heart and almost five centuries later, Gale (129-200 A D), modified these descriptions into a form that was to endure for over a thousand years (Hall 1969). That is the nutriment was absorbed by the liver, where it was transformed into blood and transported to the heart and blood passed through invisible pores in the septum from the right to the left side and flowed in the major arteries and veins.

The reasoning from experimentation was advocated by Francis Bacon (1561-1626) and development of new or

improved instruments like the telescope encouraged the development of Physiology, eventually resulting in it being taught in the Medical Schools at that time (Frank 1980). An outstanding example was provided by William Harvey (1578-1657), who challenged the Galenic view of blood generation in his classic treatise on the movement of blood in animals 'Exercitatio anatomica de motu cordis et sanguinis (1625). He postulated that the blood constantly circulated around the living body. Harvey established that blood was ejected from the right ventricle into the pulmonary circulation, returning to the left side of the heart, and then pumped around the rest of the body being returned to the heart through a system of veins. Harvey was distinguished in many fields of medicine and medical sciences and is widely regarded as the founder of Modern Physiology (Sloan 1978). Harvey's influences continued at Oxford, where a group of physiologists (Robert Boyle, Robert Hooke and others) using animal experiments and specially constructed equipment studied the composition of the air, the process of respiration and circulation of the blood (Frank 1980).

By the beginning of the eighteenth century, the investigators work in physiology took a new turn and Hermann Boerhaave (1668-1738) at Leiden University, attempted to provide a rational scientific foundation for medical practice. He likened the body to a clockwork mechanism functioning according to mechanical laws and principles. This theory influenced others such as Albrecht Van Haller (1708-1777), who was a poet, physician and a Swiss government official to further develop Boerhaave's theories by dividing animal tissues into sensible and irritable parts depending on their reactive properties.

Towards the end of the eighteenth century, the accidental observation that a frog muscle contracted when a metal pin in the spinal cord was stimulated by contact with another metal led Galvani (1737-1798) to postulate the existence of animal electricity. The debates on electrical properties of animal tissues such as muscle and nerve continued until Emil Du Bois-Raymond (1818-1896) integrated Galvani's concept into a theory of electrical nature of the nervous impulses (Brazier 1984)

The nineteenth century brought about the beginning of the experimental tradition in Physiology. Flourishing

of new hospitals and the growing awareness among medical practitioners that disease processes involved pathological changes emphasised dynamic functional aspects of health and illness leading to practical approaches by key figures at the time such as Claude Bernard (1813-1878) in France and Carl Ludwig (1816-1895) in Germany, leading to the development of new methods for the promotion of Physiology. During this period, Physiology developed into an independent experimental science. Additionally, sophisticated, specifically developed equipment and instruments were produced and became an accepted part of the experimental physiological procedures.

Many institutes and laboratories in Europe were responsible for pioneering the development of Physiology as a scientific discipline during the nineteenth century. In France, the development of hospital medicine produced a revolution in medical practice, with the concomitant creation of the clinic and the furtherance of bedside clinical teaching (Holmes 1974). From this medical tradition arose several of France's most distinguished Physiologists including Francois Magendie (1783-1855) and his pupil, Claude Bernard.

The veterinary schools in France could be considered the cradles of Experimental Physiology. The French wars during the Napoleonic period provided a regular supply of diseased and injured horses for experimental purposes (Crane 1957). Thus another subdiscipline Experimental Physiology was born. In Germany also, several physiological laboratories were established in Heidelberg, Leipzig and Munich for the support and furtherance of Physiology with full time research staff.

Several physiologists were outstanding with regard to their contribution to Physiology and their discoveries. Claude Bernard (1813-1878) is known to us first as an experimentalist and for the advancement of new ideas and techniques as a teacher (Holmes 1974). He was the pioneer of the concept of *milieu interieur*, which is one of the fundamental principles of Physiology and the developer of new methods in Animal Surgery. Bernard's work contributed to the elucidation of the digestive role of pancreatic juice, metabolic functions of the liver, and by using curare, he differentiated sensory and motor properties of mixed nerves (Holmes 1974). His principles

of *milleu interieur* was later developed into the theory of homeostasis by American Physiologist Walter Cannon (1871-1945). For much of his career, Claude Bernard worked in a cramped basement in the College de France in Paris, from which his students returned to their own countries to further develop on his ideas and discoveries to take Physiology into the next century.

Carl Ludwig (1816-1895) was a distinguished pupil of Johannes Muller (1805-1858). Muller is best remembered for his theory of specific nerve energies, which stipulated that stimulation of any given sense organ gave rise to its own peculiar sensation (Rothshuh 1973). Like Claude Bernard, Ludwig was a mentor to the next generation of physiologists. It was Ludwig's skills and talents in Experimental Physiology that drew attraction from around the world. His work on the blood and the innervation of blood vessels as well as the designing of the kymograph, the precursor of all graphic recording instruments used in Physiology, survive to this day. He theorised that physiological phenomena shall be explained only by reference to the known laws of physics and chemistry (Rothshuh 1973).

While France and Germany were at the forefront in the development of Physiology in the nineteenth century, Britain followed in their footsteps. William Sharpey (1802-1880) followed his medical teaching in Edinburgh and visited the European physiological laboratories before returning to become the Professor of Anatomy and General Physiology at University College, London (Geison 1978). His pupils included Michael Foster (1836 - 1907), who went on to become the first Professor of Physiology at Cambridge (Geison 1978).

The use of animals for experimental research brought concern and suspicion from the public in Britain, which resulted in the legislation in the Cruelty to the Animals Act of 1876. Thus in Britain, people and places involved in such animal experimental work had to be registered with the Home Office up until now.

By the beginning of the twentieth century, Physiology was accepted in most medical schools curricula to be taught as an important component of medical teaching. While experimental research and development of instruments and equipment went ahead, another new dimension added to the propagation of Physiology in the

early twentieth century were the presentations and publications, text books and journals, scientific meetings and professional societies. In Germany, Pfluger Archiv or European Journal of Physiology was born in 1868 (Bromen 1991). In Britain, the Journal of Anatomy and Physiology started publishing from 1866. Michael Foster in 1878 founded Journal of Physiology and even the early volumes contained original research papers. The American Physiological Society organized the publication of American Journal of Physiology in 1898. The quarterly Journal of Experimental Physiology. (now Experimental Physiology) was first published in 1909 as a rival to Journal of Physiology. However, both titles are now owned by The Physiological Society. For the presentation of broad based reviews, journals such as Physiological Reviews (established in 1921), Annual Reviews of physiology (1939) and more recently news of the Physiological Sciences (1986) were produced. While physiological journals were the media through which research outcomes were known to the world, the teaching of Physiology was mediated by the production of student text books. Muller's 'Elements of Physiology' was among the first of these text books and lasted from 1838 to 1960. An American, W A Howell in 1905 produced the 'Text book of Physiology' and more attractive, compact text books produced by Ganong, Samson Wright, Best and Taylor and Guyton were more popular by the 1960s (Bromen 1991).

By the end of the nineteenth century, professional societies have commenced arriving in the horizon. Both the British Medical Association and the British Association for the Advancement of Science provided specialist 'Physiological' sections. However, with the legislation regarding animal experimentation coming into operation in 1876, there was a need to have an association to protect the Physiologists and to communicate on mutually beneficial topics and The Physiological Society was born (Bynum 1976, Hoff and Fulton 1937). The American Physiological Society was founded in 1887 modelled on the British counterpart and Henry Newell Martin was the founder of both these societies. It was a British initiative that resulted in the International Congress of Physiological Societies in 1889 in Basle, which was attended by over a hundred Physiologists mainly from America and Europe (Franklin 1938). It is now called the International Union of physiological Sciences, which hold its congresses every four years, the next being scheduled for July 1997 at St Petersburg, Russia.

Much of the infrastructure needed to continue physiological research was developed in the early twentieth century. The Nobel prize for Physiology or Medicine was established in 1901 and since then many reputed physiologists have won the coveted award. Twentieth century physiology is also noted for the development of 'in vitro' and 'in vivo' techniques of investigations as well as organ bath experimentation techniques using tissues and not whole animals.

During the early twentieth century, physiological research developed mostly on a system based manner. Cardiovascular Physiology and its practical applications in clinical practice was initiated by the classical studies of W H Gaskell (1847-1914) of the regulation of skeletal and heart muscle contraction in frogs. Ernest Starling (1866-1927) using a heart lung preparation deduced his 'law of the heart', which related the contractile energy of a cardiac muscle fibre to its resting length. The technique devised by Adolf Fick (1829-1901) for calculating cardiac output was finally translated into a clinical application for human use. The heart's specialized conduction system was first investigated thoroughly by F W Stannius (1803-1883), who demonstrated the vagal inhibition and intrinsic pacemaker properties of the heart. William His (1863-1934) discovered in 1893 the auriculo ventricular bundle of specialised conducting tissue that bears his name today. Robin Fahraeus (1887-1938) showed that the blood flow and the velocity of cells and plasma in a vessel depends on the size of the lumen of the vessel and smaller the lumen, greater the tendency for non uniform distribution of cells in blood, which is called the Fahraeus Effect (Goldsmith et al 1989).

The invention of the electrocardiograph by Dutch physiologist Willem Einthoven in 1902 gave physicians a powerful tool to help diagnose various forms of heart disease, especially arrhythmias and acute myocardial infarction (Fye 1994, Erschler 1988). The discovery of X rays in 1895 and the invention of the electrocardiography seven years later inaugurated a new era in which various machines and technical procedures gradually replaced the physicians unaided senses and the stethoscope as the primary tools of cardiac diagnosis.

In Respiratory Physiology, two British physiologists in particular John Haldane (1860-1936) and Joseph Barcroft

(1872-1947) contributed vastly to the understanding of the mechanisms of ventilation. Haldane studied physiological adaptive mechanisms in a wide ranging environmental conditions, including high altitude (Haldane 1922). Haldane also determined that oxygen tension in the blood was somewhat higher than in the pulmonary air and concluded in a belief he held until his death, that the lungs secreted oxygen. The 'Haldane Apparatus' for gas analysis was developed to measure oxygen and carbon dioxide very accurately and was a cornerstone of Respiratory Physiology until superseded by more sophisticated apparatus. John Barcroft, who was a student of Michael Foster at Cambridge examined the oxygen carrying capacity of blood and oxygen dissociation from haemoglobin (Barcroft 1914).

The physiology of the Gastrointestinal System developed mainly due to the initial contributions made by the works of Russian Physiologist Ivan Pavlov (1849-1936). Pavlov studied the gastric and pancreatic function ultimately leading to the study of Physiological Psychology (Pavlov 1914). Pavlov was not only a famous physiologist, but due to his work on the conditional reflex, he could be considered a behavioural scientist (Pare 1990). Pavlov's conditional reflex formulations were based on the individual differences of his animal subjects (Pare 1990).

From the end of the nineteenth century, studies on the secretory functions on the gut, pioneered by Pavlov, Bayliss and Starling expanded during the twentieth century into a wide range of complimentary subdisciplines. The use of radio opaque material to visualize the lumen of the gut by American Physiologist Walter Cannon revolutionized the understanding and diagnosis of gastrointestinal motility functions and diseases (Benison et al 1987).

Neurophysiology owes much to the work of Charles Sherrington, who made it into a scientific speciality (Worden et al 1975). After qualifying in Medicine in 1885, he became a Lecturer in Physiology at the St Thomas's Hospital in London- the first specialist physiologist to hold such a post. Subsequently, he became the Professor of Physiology at Liverpool University in 1895 and at Oxford in 1913. His book on Mammalian Physiology was written during the first world war. But it is for his careful analysis of the function of the Nervous system that he is

remembered. Sherrington postulated that a reflex arc had to contain at least two neurones, necessitating intercellular conduction of the nerve impulse at a junction or space called a synapse. His studies on primates established the modern physiological understanding of the nervous system. In 1932, he shared the Nobel prize with fellow neurophysiologist E D Adrian for their work on synaptic transmission.

However, it was Henry Dale (1875-1968), a student of Gaskell at Cambridge, who discovered that chemical transmitter acetylcholine as responsible for transmission across synapses in the nervous system (Feldberg 1977). For this work, Dale shared the Nobel prize with an Austrian, Otto Lewi in 1936. Subsequently, this was known as Dale's law, which stipulated 'one neurone, one transmitter' (Tansey 1991). Dale also discovered histamine and isolated oxytocin from posterior pituitary extract in 1928, which illustrates the length and breadth of his interest in physiological regulatory mechanisms.

When Dale began his research career on the autonomic nervous system in 1903, the discovery of chemical neurotransmitters led to the use of these endogenous chemicals in therapeutics leading to the discovery of the role of such substances in control mechanisms of the body (Tansey 1991). The endocrinology became a distinct speciality with these developments by the turn of this century. Ernest Starling and William Bayliss of University College London made a landmark discovery in the history of Endocrinology in 1902, when they discovered that the mucosa of the upper part of the intestine on contact with acid secreted a factor, which induced pancreatic enzyme secretion. In 1921, two Canadians, F Banting (1891-1941) and C H Best (1899-1978) made perhaps the most famous endocrinological discovery, that of pancreatic insulin for the treatment of diabetes.

Bayliss and Starling's original recognition of hormones as chemical messengers implied identification of a target, a hormone receptor site. In the 1970s and 1980s, membrane physiological studies revealed the presence of such receptor mediated hormone action.

With these new developments in Physiology combined with new experimental techniques and integrated

research, the traditional departmental barriers have started coming down and the boundaries between basic sciences such as Physiology, Pharmacology, Biochemistry etc is becoming increasingly blurred.

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Wear resistance of composites - An in vitro study

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Summary

The aim of the present study was to observe wear resistance of different composite materials which are being used for posterior teeth. Tooth brush and glass beads abrasion tests were carried out to compare the wear of 14 different composite materials. The rate of wear from glass beads abrasion test was higher than that of the tooth brush abrasion test in all the composites, except the materials Heliomolar radiopaque and Palifique estelite. The materials which are being used in restoration of both anterior- posterior group had shown the lowest wear resistance of all. Scanning electron microscopic pictures taken after the two tests showed that the materials which consisted of more microfillers or more spherical filler particles had low wear resistance. Size and the shape of the filler particles are significantly related to the wear resistance of the composite materials.

Key words : Composite, filler, wear resistance, toothbrush abrasion, glass beads abrasion.

Introduction

The development of the present day composites has provided not only esthetic restorative materials which have overcome many shortcomings associated with other tooth colored materials, but also as a useful substitute for amalgam.

However the poor long term durability of composites resin restorations has resulted in more changes to improve the restorative material before being considered as a total replacement for amalgam. The primary problem has been the poor wear resistance in restorations which are exposed to occlusal stresses. (Harrington E., et al 1982). Manufacturers have taken effort to improve the wear resistance by modifying the filler chemistry of the composites. As a result of this, there is a vast number of

composite materials which consist of different filler chemistry, available in the market and many more are being produced. With the introduction of microfiller, submicrofiller and hybrid composites has led to materials with improved mechanical properties. Many authors have reported improved clinical wear resistance of the microfilled resins over conventional composites. (Jorgensen and Asmussen, 1978, Draughn R.A., and Harrison A., 1978, Rice S.L. et al 1984). Most Dental practitioners in Sri Lanka now do not use conventional composites, though it is not uncommon to see that the Anterior, Anterior-Posterior and Posterior composites are universally used in restoration of posterior teeth. The primary objective of the present investigation is to compare the wear resistance of different composite restorative materials which are being used in posterior restorations.

Materials and methods

Two different methods were used to evaluate wear resistance of 14 different composite materials. These materials were categorized into three groups namely anterior, posterior and anterior- posterior composites. Batch numbers and manufacturers for all materials tested are given in table - 1.

Five test specimens of (10x10x1.5mm) each material were prepared by using the stainless steel molds (fig 1).

There are two halves of a 10x10x1.5 mm square block fitted to the center of the stainless steel mold. These two halves of the block can be separated after preparation of each sample. The stainless steel mold was placed on a glass plate and a cellulose acetate separating strip. The center of the stainless steel block was filled with the composite material. The material was pressed into the block properly by using another glass plate and a cellulose acetate strip.

These specimens of light - cure composites were exposed to light emitted by optilux with five 10 second exposures on both upper and lower side of the specimens. All these specimens were polished with a 1200-grit silicon carbide paper under water to wear away 200 μ in thickness in order to remove the surface monomer. These specimens were cleansed with an ultrasonic cleaner for 10 minutes , wiped and dried. All the specimens were labeled and placed in a desicator for 5 days until they obtain a constant weight. Weight of each sample was measured before and after the test.

Tooth brushing apparatus constructed for a previous study was used in this experiment (Tani, Y, 1987). Schematic diagram of the tooth brushing and glass beads abrasion tests is illustrated in fig- 2.

150 gm of tooth paste (Lurk Sunstar, Sunstar Inc Takatsuki, Japan) was added to water to make a total volume of 500ml slurry. The slurry was spread over the PMMA (Para Monochloro Methyl Acrylate) plate stage (Fig. 2).

The apparatus consisted with 5 horizontal drive arms. 5 specimens, one for each arm, fixed to the vertical stage on the horizontal drive arms, were reciprocated with a 400 g load, on a long toothbrush made by connecting the brushing heads of five hard tooth brushes, in a series with the slurry, at a velocity of 60 strokes per minutes, 10,000 times, which is equivalent to traveling 1,000m.

Table 1: Materials tested

Material	Type	Batch number	Manufacturer
Restolux sp-2	Anterior	CA 91733	Lee pharmaceuticals
Graft LC	Anterior	911221C	GC Dental product
Silux plus	Anterior	9BP2D	3M
Restolux sp-4	Posterior	0302	Lee Pharmaceuticals
Clearfil photo post.	Posterior	0012	Kuraray
Palifique lite post.	Posterior	644	Tokuyama Soda
Lite fil II post.	Posterior	089458	Shofu
Palifique Estelite	Anterior-Posterior	262	Tokuyama Soda
Z-100	Anterior-Posterior	5904	3M
Progress	Anterior-Posterior	INC2D	Kanebo ltd.
Heliomolar radiopaque	Anterior-Posterior	460319	Vivadent
Clearfil AP-X	Anterior-posterior	0007	Kuraray
Estio LC	Anterior-posterior	941020B	GC Dental
Tetric	Anterior- posterior	560563	Vivadent

The glass beads abrasion test was also carried out for comparison. The slurry for glass beads abrasion test was prepared by mixing 140 g of glass beads (EGB - 731, Toshiba - Ballotini Co, Ltd, Tokyo, Japan) in 100ml water.

The particle size distribution ranging from 10 μ to 50 μ . The specimen, fixed in the horizontal drive arm, was reciprocated with a 400g load at a velocity of 60 strokes per minute 10,000 times, which is equivalent to traveling 1,000m.

The degree of wear was evaluated by measurement of thickness of specimens before and after the test. A profile projector (V-12, Nikon Cop., Tokyo Japan), accurate to 1 μ was employed for measurement of specimen thickness.

The thickness loss after each test was calculated by using the following assumption

$$\text{Thickness loss} = \frac{\text{Weight loss}}{\text{Original weight}} \times \text{Original thickness}$$

All specimens after the abrasion test were observed by scanning electron microscopy (S-450, Hitachi Corp., Tokyo Japan).

Results

The results are shown as the mean value of five measurements for each material and test (table-2). Reproducibility of results is considered good as shown by the low values for standard deviation.

Results obtained from the two abrasion tests showed that the tooth brush abrasion after given number of cycles was lesser than that of the Glass bead abrasion on composite materials. Mean thickness loss due to tooth brush abrasion of Anterior restorative composite materials was within the range of 0.04 μ -0.07 μ , whereas the mean thickness loss due to glass bead abrasion was between 0.02 μ - 0.12 μ (fig -3). Tooth brush abrasion of posterior group was between the range of 0.02 μ - 0.12 μ .and the glass bead abrasion of posterior group was within the range of 0.03 μ -0.21 μ .The results obtained from the anterior- posterior group showed the mean thickness loss due to tooth brush within the range of 0.03 μ -0.13 μ and the mean thickness loss due to

glass bead abrasion within the range of 0.01 μ -0.25 μ . Results of the material Palifique estelite was not significant as the SD of the mean thickness loss of material was high(6.5). These results indicated that there was a low abrasion due to the tooth brush in posterior composite materials group than that of other two groups.

Anterior-Posterior group had shown relatively low abrasion due to the tooth brush -dentrifice and high abrasion results from the Glass Beads abrasion test. (fig-3).

Heliomolar radioopeque and Palifique Estelite from the Anterior-Posterior group have abraded quite rapidly due to the tooth brush than that of the Glass bead abrasion test. The SD of the mean thickness loss of the material Palifique Estelite was (6.5). Both test I and test II show similar results with respect to the TBA and GBA (table -2).

The materials, Palifique lite posterior and Progress from the posterior group had given the most marked increase of abrasive results due to GBA test, although the tooth brush test results of those were low .

Scanning electron microscopic pictures of different types of composites which were taken after the test explain the difference wear mechanism of different types of composites.

Discussion

Teeth and filling materials in the oral cavity wear due to combination of several factors, such as, masticatory forces, abrasion from tooth brush and dentrifice and erosion from oral fluids. Many researchers have studied the wear resistance of different composite materials using different methods. Results obtained from these tests varied according to the method used (J.E.Mc.CaBe & B.H.Smith,1981). John R. Aker 1982 from his study of wear characteristics of composites had investigated that the surface characters after abrasion test were directly related to the arrangement of the inorganic filler particles. According to the results obtained from the present study showed that the wear resistance was greatly depend on the filler chemistry of the composites. The scanning electron micrographic pictures showing the distribution and the size of the inorganic filler in the organic matrix indicated that the materials which contained larger inorganic particles had shown low

Table 2: Mean Thickness Loss of composites after 10,000 successive strokes.

		<i>Mean Thickness loss</i>								
<i>Material</i>	<i>Type</i>	<i>Tooth Brush Abrasion test</i>				<i>Glass Beads Abriasion test</i>				
		<i>1</i>	<i>SD</i>	<i>11</i>	<i>SD</i>	<i>1</i>	<i>SD</i>	<i>11</i>	<i>SD</i>	
Anterior	Resto Sp-2	RSP	0.045	(.04)	0.045	(.02)	0.117	(.06)	0.078	(.08)
	Graft LC	GLC	0.048	(.01)	0.076	(.03)	0.089	(.05)	0.125	(.10)
	Silux plus	SLP	0.070	(.06)	0.045	(.02)	0.018	(.01)	0.013	(.01)
	Resto sp-4	RSP-4	0.034	(.01)	0.026	(.01)	0.055	(.045)	0.061	(.04)
Posterior	Clearfil Photo Post	CPP	0.043	(.04)	0.043	(.05)	0.042	(.042)	0.086	(.14)
	Palifique lite post	PLP	0.055	(.03)	0.030	(.01)	0.189	(.15)	0.196	(.10)
	Litefil 11 P	LFP	0.148	(.03)	0.013	(.01)	0.138	(.06)	0.081	(.10)
	Palifique estelite	PE	0.062	(2.5)	0.127	(6.5)	0.042	(.03)	0.037	(7.3)
	Z-100	Z	0.049	(.03)	0.029	(5.3)	0.095	(.08)	0.216	(.11)
	Progress	Pr	0.038	(.01)	0.052	(.02)	0.113	(.08)	0.247	(.07)
	Ant-poster	Heliomolar	HR	0.021	(0.5)	0.997	(.12)	0.015	(.03)	0.011
	Clearfil APX	CAP	0.050	(.02)	0.028	(.03)	0.171	(.08)	0.122	(.12)
	Estio LC	ELC	0.111	(.15)	0.039	(.02)	0.151	(.08)	0.182	(.02)
	Tetric	Te	0.026	(.01)	0.041	(.02)	0.295	(.06)	0.186	(1.09)

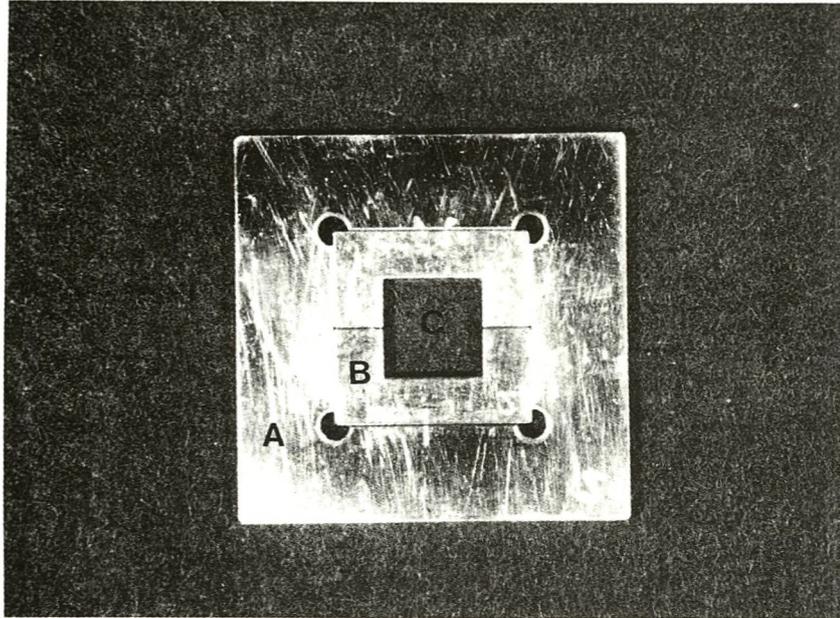


Fig-1 Stainless steel mold for preparation of samples. A-Outer frame, B-Inner frame, C-Material

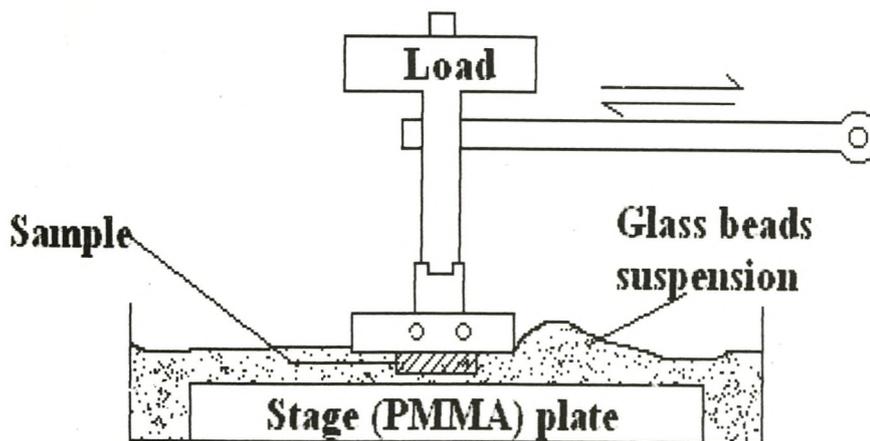


Fig - 2 Schematic diagram of the abrasion test apparatus.

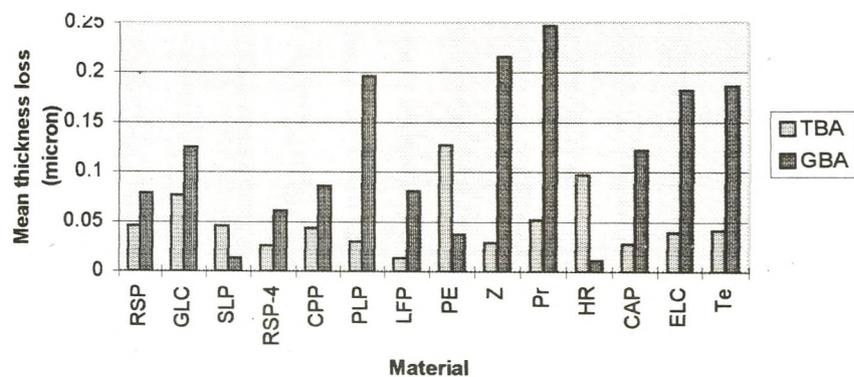


Fig-3 Mean thickness loss of composite materials in toothbrush and glass beads abrasion tests.

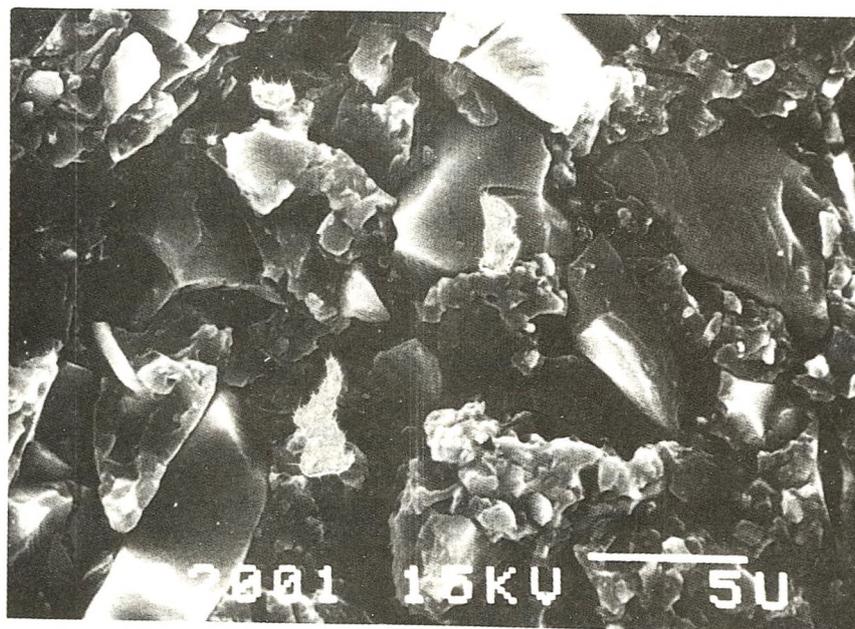


Fig-4 SEM view of material Restolux SP-4. Distribution of large filler particles is shown. X1500 magnification.

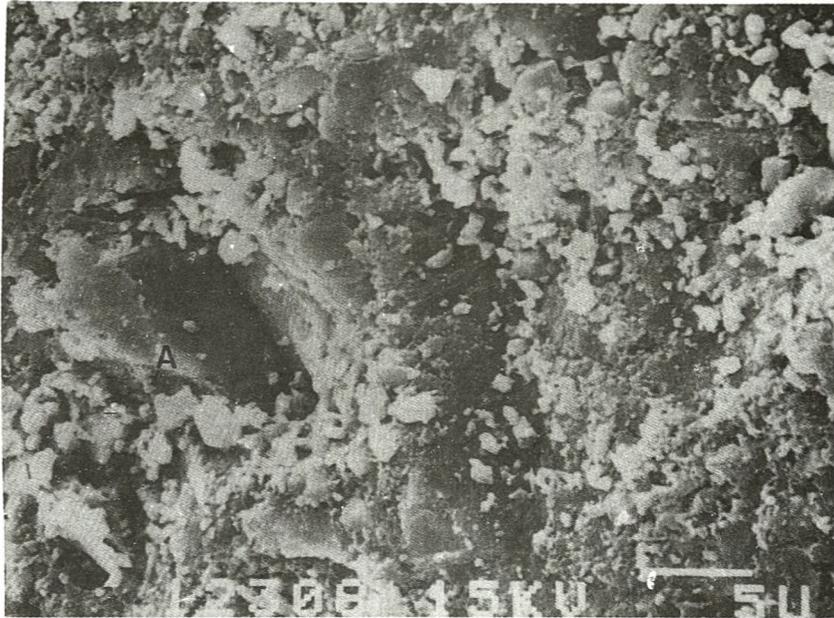


Fig-5 SEM view of material Clearfil photo posterior. Distribution of microfiller Particles

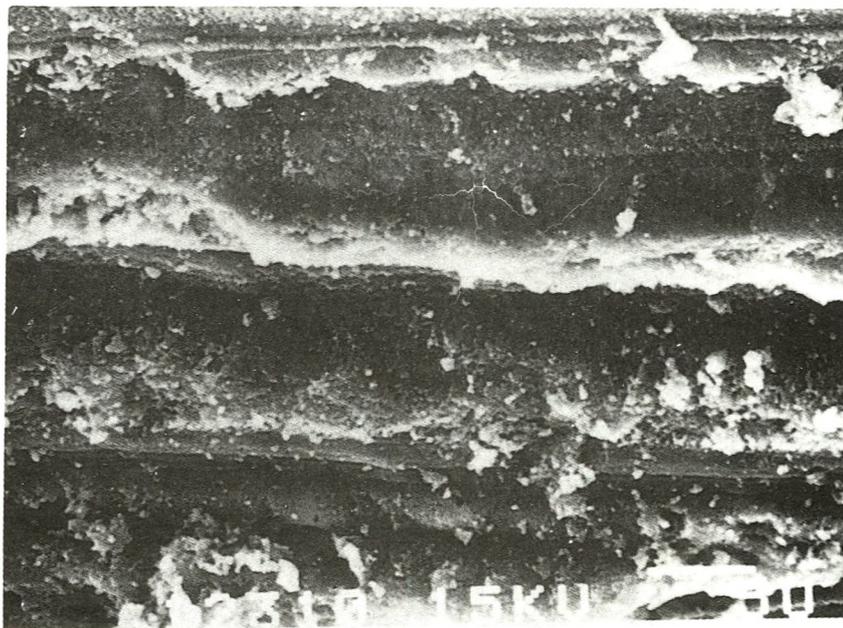


Fig-6 SEM view of the material Palifque estelite. X1500 magnification. Abrasion lines are shown .

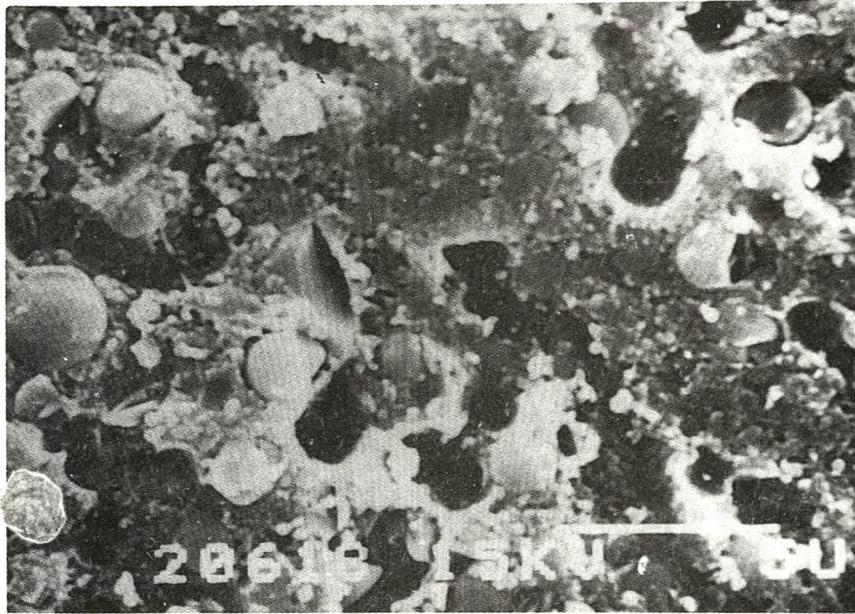


Fig-7 SEM view of the material Progress showing the large spherule shaped fillers and microfillers. Incorporation of more microfillers into the matrix is shown. X 1500 magnification.

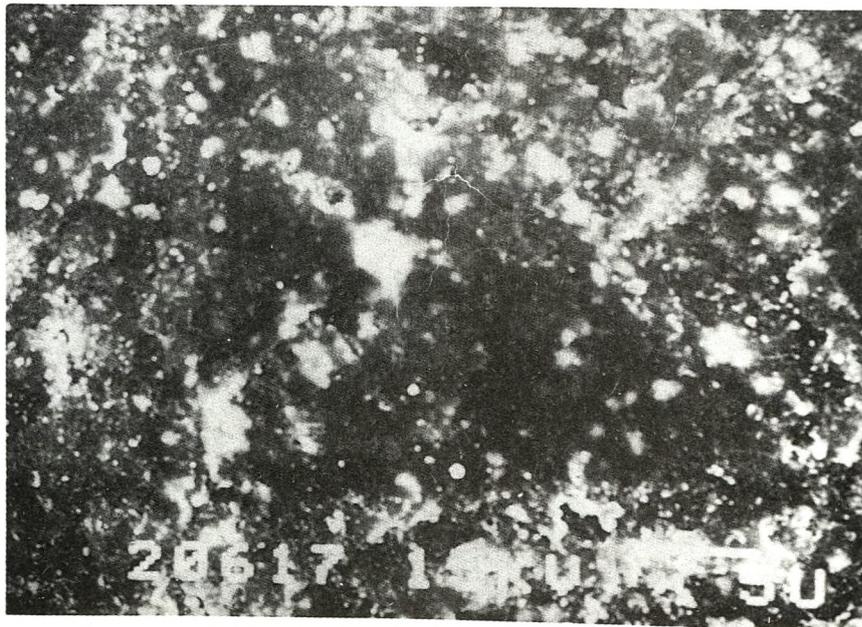


Fig-8 SEM view of the material Heliomolar radiopaque. x1500 magnification.

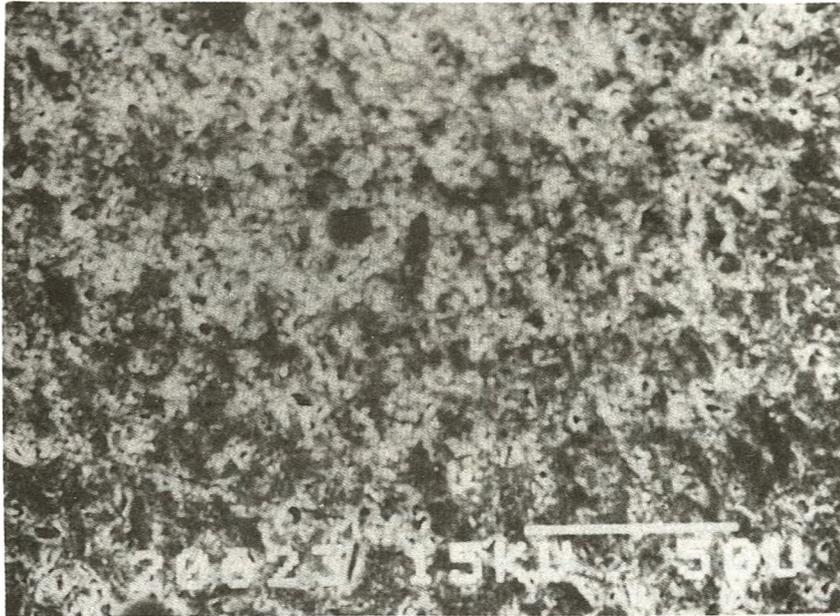


Fig-9 SEM view of the material Clearfil AP-X. x1500 magnification.



Fig-10 SEM view of the material Tetric. X1500 magnification.

resistance to wear from both tests (fig-4 ,fig-5). Based on these results from both TBA and GBA, the materials RSP-4, RSP-2, CPP which have larger filler particles can be considered as materials with low resistance to abrasion.

Smaller filler particles from the matrix tends to loose initially causing damage to smoothness of the surface. This would leave a focus of colonization of bacteria and absorbent of various stains. Large inorganic particles will get removed from the matrix due to the abrasion much later. Tooth brush abrasion test results were indicative of initial lose of thickness from the composites, while the glass bead abrasion test results gave information of long term resistance to wear.

Although the materials PLP,Pr,ELC and Tetric had shown higher resistance to wear, from the tooth Brush Abrasion test, low wear resistance is seen from the Glass Beads Abrasion test. Materials in Anterior-Posterior group had given the similar results in which, higher wear resistance is recorded from the TBA, than that of the GBA. Materials in this group consist of both submicrone and large particles. Although this combination may enhance to improve some other physical properties of the material, such as fracture toughness and fatigue strength, there was no evidence to show that this combination will help to improve the wear characters of the materials(fig-7). SEM view of material Te indicated that the arrangement of submicrone type and heterogeneous large particles in the matrix (fig-10). SEM photographs taken from the materials Progress and Palifique Lite Posterior showed that these materials consisted of spherical shape submicrone and large size filler particles. (fig-7). Spherical particles tend to dislodge from the matrix faster than irregular shaped particles. Low abrasive resistance may be as a result of incorporation of these spherical shaped particles into the matrix.

Palifique Estelite, Heliomolar consists of agglomerated complexes. SEM view of these materials showed round particles agglomerated to form complexes (fig-8). Loosely bound complexes can get dislodged readily from the matrix resulting gross loss of thickness from the materials. According to the SEM view of CPP (fig-5) and the wear results showed that the surface layer of this material still consists of the protective monomer layer which may have increased the wear resistant of this material. Heath and wilson (1976), stated that the satisfaction about the

composites restoration may increase composites coated with a wear resistant coherent protective film.

Conclusion

The degree of wear of composites greatly depend on the type of filler combination of the material.

Materials which consisted of combination of more submicrone fillers and large irregular shape particles wear rapidly due to the tooth brush and dentifrice abrasion.

Incorporation of spherical shaped fillers in to the matrix would result in rapid loss of materials .

Materials with protective film would enhance the wear resistance of composites.

Acknowledgments

The support given by the Japan Dental Association to conduct the study in Japan is greatly acknowledged. The authors are indebted to the center of Bio Medical Engineering , University of Kyoto for technical assistance and the laboratory facilities.

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Oral Health Status, Treatment Needs and Oral Health Behaviour in First Year Dental Students

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Summary

The oral health status, treatment needs and oral health behaviours were assessed in first year dental students who entered the faculty of Dental Sciences, University of Peradeniya in 1994. The results showed that the mean DMFT was 2.78. Nearly 46% of the students required treatment for caries while 40.9% required treatment for periodontal disease assessed according to the CPITN index. With regards to oral health related behaviours 65.2% of the sample claimed that they brushed their teeth twice a day. Ten percent of the students had never received dental treatment and 40.7% had last visited a dentist over 24 months ago.

Key words: oral health, treatment needs, behaviour

Introduction

It has been shown that the oral health status of dental students in some countries is similar to that of the corresponding general population (Smales, 1974). However as no information is available pertaining to the oral health status of dental students in Sri Lanka it is not possible to determine whether the same relationship exists. Therefore the aim of the present study is to determine the oral health status, treatment needs and oral health behaviour in first year dental students.

Methods and materials

The sample consisted of 66 out of a total of 70 first year dental students enrolled at the Faculty of Dental Science in 1994. At the time of the study, these students were following the intensive course in English prior to the commencement of the academic programme in dentistry.

There were 30 males (45.5%) and 36 females (54.5%). The mean age of the students were 22.5 years (s.d. = 0.8).

The students were examined for periodontal disease and treatment needs for periodontal disease using the CPITN on index teeth. Caries and treatment needs for caries were assessed using the World Health Organization (1987) criteria. However, as some of the treatment needs for caries recommended by the WHO are not applicable in the context of Sri Lanka, the treatments considered for caries were restorations, extractions and endodontic therapy for anterior teeth. Examinations were conducted by one of the authors (SLE) in the Paedodontic clinic over a period of three weeks without prior notice being given to the students. Those who were found to be in need of treatment were advised accordingly.

Information pertaining to oral health behaviour was obtained by means of an questionnaire administered to the students prior to the oral examination.

Results

Table 1 shows that 19.7% of the sample was free from caries (DMFT=0) and the mean DMFT of the sample was 2.78. The decayed component contributed least to the mean caries experience.

The percentage distribution of subjects according to the different CPITN scores and periodontal treatment needs based on the CPITN are shown in Table 2. Only 21.1% of the sample had healthy gums (CPITN=0) while 39.4% scored CPITN score 2 as the highest score. Deep pockets of > 6 mm. (CPITN=4) were not found in the sample. Oral hygiene instructions were needed for 37.9% while a combination of oral hygiene instructions and scaling were

needed for 40.9% of the sample (CPITN score 2 and 3). Treatment needed for carious teeth is shown in Table 3. The mean number of teeth needing extractions, one surface and two surface restorations were 0.07, 0.35 and 0.23 respectively. One surface restorations which was the commonest treatment required for caries was needed by 21.2% of the sample.

The responses to the questions on oral health behaviours are shown in Table 4. All students claimed to brush their teeth daily while a majority (65.2%) cleaned twice a day. Over 80% had stated that they consume fizzy drinks and sweets occasionally. Seven of the total of 66 students (10.6%) had never received dental care. Of the 59 students who had received dental care, eighteen students (30.5%) stated that they received treatment from private practitioners. School dental therapists had been the sole providers of dental care for 9 students (15.3%). Nearly 34% of the sample reported that their last dental visit was within the past six months. In contrast, 40.7% had not visited a dental practitioner for over 24 months.

Table 1 - Mean DMFT, mean number of decayed, missing and filled teeth and the percentage of caries free subjects

	mean	s.d
DMFT	2.78	2.6
Decayed teeth	0.68	1.0
Missing teeth	0.84	1.1
Filled teeth	1.26	1.8
% caries free	19.7	

Table 2 - Distribution of subjects according to the highest CPITN score and treatment needs

CPITN score	Treatment needs	n	%
L 0	no treatment	14	21.1
L	OHI only	25	37.9
L 2	OHI & scaling	26	39.4
L	OHI & scaling	1	1.5
L 4	complex perio care	0	0.0

OH1 oral hygiene instructions

Table 3 - Distribution of Subjects and the mean number of teeth needing different types of treatment for caries

Type of treatment	%	mean
One surface filling	21.2	0.35
Two surface filling	15.2	0.23
Extractions	7.6	0.07
Endodontics	1.6	0.03

Table 4 - Distribution of subjects according to the responses to questions on oral health behaviour

Question	n	%
<i>How often do you brush your teeth per day?</i>		
Once	4	6.0
Twice	43	65.2
Thrice	17	25.8
More than thrice	2	3.0
<i>How often do you eat sweets?</i>		
Never	0	0.0
Occasionally	54	81.9
Once a week	2	3.0
Daily	6	9.0
Several times a day	4	6.0
<i>How often do you have fizzy drinks?</i>		
Never	5	7.6
Occasionally	53	80.3
Once a week	6	9.0
Daily	1	1.5
Several times a day	1	1.5
<i>Have you ever had dental treatment?</i>		
Yes	59	89.4
No	7	10.6
<i>If yes, from whom?</i>		
Dentist in govt. hospital	17	28.8
Dentist in private practice	18	30.5
School dental therapist	9	15.3
From any two sources mentioned above	12	20.3
From all three sources	3	5.1

When was your last visit to a dental practitioner?

< 6 months ago	20	33.9
6 -12 months ago	11	18.6
13-24 months ago	4	6.8
> 24 months ago	24	40.7

Discussion

The Faculty of Dental Sciences at Peradeniya being the only one of its kind in Sri Lanka admits students from all the districts in the country. Therefore the students may be considered representative of the educated young adults of the country. Moreover, as the study sample consisted of new entrants who had been not exposed to the academic programme in dentistry, their oral health may indicate the oral health status of the new entrants to the universities in general.

Oral health status and treatment needs

The results revealed that the caries prevalence was high (80.3%) but the mean caries experience was low (DMFT= 2.78) in the first year dental students. There are no recent studies on oral health status of young adults which could be compared with this study. The only available study was conducted by Tilakaratne (1966) 30 years ago, on a sample of students from the University of Peradeniya. He reported that the mean DMFT of students was 3.82. The differences in the criteria used for diagnosis of caries could be considered as one reason for the lower caries experience observed in the present study.

Gingival bleeding and calculus were present in nearly 80% of the sample. Studies have shown that the first year dental students had both the worst oral cleanliness and gingival health among dental students and an improvement in oral cleanliness occurred as they progressed through the dental course (Lang et.al. 1977, Cavaillon et.al. 1982). The improvement in oral hygiene status of second year dental students compared to freshers has been attributed to an intensive exposure to a course in preventive dentistry including oral hygiene techniques during the second year (Lang et.al. 1977). The poor gingival health in the sample may be due to the fact that they had not been exposed to any clinical or didactic courses related to oral hygiene which may influence their gingival health.

Over 40% of the students required treatment for dental caries and periodontal disease. The treatments needed were primarily dental restorations and scalings. In contrast, requirement for oral prophylaxis/scaling was minimal for American dental students (Coleman et.al. 1991). According to Coleman et.al.(1991), the high level of untreated disease in dental students was due to lack of perceived need, fear, insufficient time to obtain treatment in a crowded academic schedule and personal attitudes.

Oral health behaviour

In order to achieve and maintain good oral health, three behavioural patterns are recommended: regular and efficient tooth cleaning, reducing the amount and frequency of sugar intake and regular use of professional dental health services (Levine 1996). When these behavioural patterns were assessed in this study, it was found that tooth brushing was well established as a daily routine and majority of them brushed their teeth twice a day. This is consistent with other studies conducted on dental students (Howat et.al.1979, Cavaillon et.al. 1982). Daily consumption of sweets and fizzy drinks was low in the students. The time since the last dental visit is a commonly used indicator for utilisation of dental services (Goodman 1990). Forty percent of the students had last visited a dental practitioner over 24 months ago. The nine students who obtained treatment only from school dental therapists, had last received treatment almost 10 years ago while they were junior school students. This could be expected because most of the people in Sri Lanka visit a dentist when there is an acute disturbing symptom (Warnakulasooriya 1985). Regular visits to the dentists for a routine check up is rare except among the educated and the high socio-economic groups.

It is evident from this study that the prevalence of dental diseases and treatment needs are high in first year dental students. Therefore, there is an urgent need to educate these students on the importance of improving their personal oral health. This in turn could influence students attitudes on oral health care towards patients.

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SHORT REPORTS

Report of Activities of the Sri Lanka Dental Association - 1996/97

Dr. Kumar Warnakula - *Hony. General Secretary, SLDA*

The Sri Lanka Dental Association was established in 1932 as the Ceylon Dental Association by 12 members with the objectives of promotion of Dental and allied sciences, and the maintenance of the honour and interest of the Dental Profession. Since then the Association has progressed steadily to be the premier professional body of Dental Surgeons of Sri Lanka and has a membership of over three hundred and fifty. The SLDA has gained membership of the Federation Dentaire Internationale, the Asia Pacific Dental Federation, and the South Asian Dental Associations Federation. Its members have participated at International Dental Congresses held by these prestigious international organizations and also hosted several international congresses in Sri Lanka enabling the exchange of knowledge between the dental surgeons of various countries. The Sri Lanka Dental profession has grown in stature among the international Dental Community. 1997 marked the moment of glory for the SLDA when it successfully hosted the 19th Asia Pacific Dental Congress.

With the expansion of the sphere of activities of the Association, Subcommittees have been appointed and different areas of activity have been delegated to them with the aim of more effective implementation of its goals.

The office of the SLDA has been streamlined and provided with modern equipment to cope with the increased demand of work and for more efficient functioning.

The present committee of the SLDA was elected at the Annual General Meeting held in June 1996.

President - Dr. Gamini de Silva
President Elect - Prof. M.T.M. Jiffry
Immediate Past President - Dr. Ranjith Weerasinghe

Vice President - Dr. Mano Fernando
Hony. General Secretary - Dr. Kumar Warnakula
Assistant Secretary/Librarian - Dr. Sarath Senaratne
Hony. Treasurer - Dr. Sunil Gunaratne
Editor - Dr. Nalin Jayatilake
Council Members - Dr. R.L. Gurusinghe
Dr. K. Krishnarasa
Air Cdr. Dr. Shelton de Mel
Dr. J.A.P. Jayasinghe
Dr. M. Munindradasa
Dr. K. Paranthamalingam
Dr. K.S.N. Ariyasinghe

Co-opted Members -

Branch Association Representatives -
Kandy Branch - Dr. R.L. Wijeyeweera
North Western Branch - Dr. Asoka Amunugama

Office Bearers of International Organizations -

Asia Pacific Dental Federation -
President - Dr. Reggie Goonetilleke
Chairman Dental Public Health Commission -
Dr. K.D.G. Saparamadu

South Asian Dental Associations Federation -
Vice President - Prof. M.T.M. Jiffry
Treasurer - Dr. J.N. Chinniah

Chairmen Of Subcommittees -
Fluoride Research Committee -
Dr. K.D.G. Saparamadu
Undergraduate and Post Graduate Dental education -
Dr. Sunil Fernando
and Continuing Dental Education
Unemployment - Dr. K. Krishnarasa

Prevention of Malpractice - Dr. Ranjith Weerasinghe
Finance - Dr(Mrs) L.T.J. Fernando
Oral Health Services, Product Endorsement and Dental
Trade - Dr. Ranjith Weerasinghe
Social Activities - Dr. Mano Fernando
Publicity and Oral Health Education -
Dr. Adly Mohamed

As the SLDA hosted the 19th APDC in April 1997 the main efforts of the association was diverted towards promotion and organization of the congress. Due to this the other activities could not be carried out to the expected level.

Out Reach Programme

The Out Reach Programmes were curtailed during the 1996/97 period due to the members being involved in promotional and other organizational activities of the 19th APDC. However three successful out reach programmes were held at Kahawatta, Poonagale, and Mahiyangana, respectively.

The first programme was held at R/ Houpe Nawalakanda Maha Vidyalaya, Udaha Houpe Kahawatta on 13th July 1996. An oral health exhibition and other educational programmes were held with nearly 700 people participating. Over 300 received treatment which were mainly conservation and dental extractions. The mobile dental unit, Ratnapura was also available for the programme.

The second camp was held along with the medical camp of the Independent Medical Practitioners Association of Sri Lanka, at Poonagala Estate, Bandrawela. At this camp emphasis was made on educating the people on prevention of oral diseases. About 300 patients were treated at this camp with dental extractions being the major treatment provided. Restorations were done mainly using the A.R.T technique with glass ionomer.

Another programme was held in association with the 50th Health Camp of the IMPA at Mahiyangana. The Hon. Minister of Health Services A.H.M. Fowzie was the chief guest at this occasion.

Part of the profit was collected from the Annual General Meeting of 1996 was reserved for the Out Reach

Programmes. Some dental equipment and instruments have been purchased out of this money. However as more equipment and material etc. are needed to carry out the out reach programmes successfully more funds are needed.

The Chairman, Out reach programme Dr. Ranjith Weerasinghe appeals to all members of the SLDA to help in what ever way possible to carry out the out reach programmes and if possible organize some programmes.

Committee on Prevention of Malpractice

Two complaints were received regarding the practice of Dentistry by unqualified persons from Polonnaruwa and Pilimathalawa. Both persons were practicing undercover of a Bachelor of Dental Surgery Degree certificate awarded to them by an Institution called Medicina Alternativa Institute affiliated to the Open International University for Complimentary Medicine.

The SLDA has initiated action against these unqualified persons, and the Chairman of the Committee Dr. Ranjith Weerasinghe has contacted the relevant authorities to take action against the practice of dentistry by these individuals.

The SLDA also protested to the Medical Council and the Ministry of Health against Dr. Balaji from India who was practicing Maxillo Facial Surgery advertising himself on T.V. and other electronic media as well as in the papers.

The Sri Lanka Dental Association protested to the Medical Council and the Ministry of Health against Dr. Balaji and requested the police to investigate into this matter. It was found that he had been allowed to practice in Sri Lanka through temporary registration by the Medical Council of Sri Lanka the committee feels that no foreigners indulging in private practice should be given temporary or other registrations for any discipline for which competent practitioners are available.

Committee on Accreditation of Dental Product

During the year 1996 / 1997 the entire Signal tooth paste range consisting of Signal Ordinary (Small,

Sri Lanka Dental Association Council -1996/1997



Standing Left to Right: Air Cdre (Dr) Shelton de Mel, Dr. M.Munindradasa, Dr.J.A.Jayasinghe, Dr. K.Krishnarasa, Dr. K.D.G.Saparamadu, Dr. Ravi Gurusinghe, Dr. Adly Mohammed, Dr.J.N.Chinniah, Dr.(Mrs)Jyanthi Fernando, Dr.K.Paranthamalingam, Wng Cdr.Dr.A.M.B.Amunugama.

Seated Left to Right: Dr. Nalin Jayatilake (Editor), Dr.Sarath Senaratne (Hony Asst, Secy/Librarian) Dr. Sunil Gunaratne (Hony. Treasurer) Dr. Ranjith Weerasinghe (Immediate Past President), Dr. Gamini De Silva (President) Prof. M.T.M.Jiffry (President - Elect) Dr. Kumar Warnakula (Hon.Gen. Secretary), Dr. Reggie Goonetilleke & Dr. Neil Gunawardhana.

Absent :Dr. Mano Fernando, Dr. K.S.N. Ariyasinghe, Dr.R.L.Wijeweera, Dr.Sunil Fernando, Dr.M.W.C.J.Jayasundera Bandara

Medium and Large), Signal Ultra and Signal Tata Control were forwarded for endorsement to the SLDA.

Adequate samples of these products were collected by the SLDA independently and forwarded for testing by the Sri Lanka Standards Institution and Ceylon Institute of Scientific and Industrial Research (CISIR) and at the Chemistry Lab at the University of Colombo. Only Signal ordinary reached the standards specified by the Sri Lanka Standards Institute. As such SLDA accepted only Signal ordinary brand of toothpaste to be professionally recognized. Unilevers (Sri Lanka) Ltd subsequently requested the SLDA to permit them to use the phrase "professionally recommended" instead of the phrase "Professionally Recognized" in their advertisements and this requested was granted by the Committee.

Hemas Marketing Ltd. has approached the SLDA requesting Endorsement for Clogard Products. They were informed of the criteria that should be followed but they have not made any positive initiative, yet.

Subcommittee on Health, Education & Publicity

Two articles pertaining to oral health care was produced and published.

- 1) Teeth for life time
This was published with the APDC '97 supplement in the Daily News of 03rd April 97.
- 2) Oral Health Programme in Sri Lanka.
The programmes conducted in Sri Lanka was published in the Dental News supplement. The 19th APDC, Colombo Sri Lanka 3rd - 7th April 1997.
- 3) Poster Exhibitions
A poster exhibition was held at the Lionel Wendt theat, Colombo 7 on 19th March 97. It was declared open by the Hon. Minister of Health, Highways and Social Services Hon. A.H.M. Fowzie and Guest of Honour was Secretary of Health, Dr. Dudley Dissanayake. The exhibition was on Oral Health and Presentation of Dental diseases. The Children in Western Province Schools took part and were categorized into 3 groups as follows.

- (1) Grade I to Grade IV
- (2) Grade V to Grade VII
- (3) Grade VIII upwards

Prizes and certificates were distributed to the first three in each category. This was sponsored by Unilever (Ceylon) Ltd.

- (4) Dental Health Education programmes were conducted by Dental Surgeons at the following out reach programmes of the SLDA.

- (1) Mahiyangana Dental Camp
- (2) Bandarawela Dental Camp

- 5) Proposal for production of Oral Health Education Material

This was put forward to the SLDA Council so that a systematic method and approach could be followed in producing Health Education Material. This will be published on the SLDA Journal.

Fluoride Research Project

A number of visits were made by the Fluoride research team to Polpithigama area to supervise and coordinate research project activities. The activities of the project at the local level was done by the Local Project Manager Dr. H.Marasinghe and his team of Health Workers.

Currently Fluoride water analysis is being carried out at the project area as well. A mid term evaluation is being done on the Fluoride Research Project, assessing the impact and accessibility of the Project.

Certificates were issued by the Fluoride Research Project to Health Care Volunteers who carry out project activities at Polpithigama.

Continuing Education programme

The following meetings were held during the period under review.

1. Dr. B.K.B. Berkovitz - on Mechanisms of tooth eruption
2. Mr. Daniel Archer - Mandibular Reconstruction
3. Mr. Michael Mars - "Management of Cleft Lip and Cleft Palate patients"

As the SLDA had the massive undertaking of making preparations to host the 19th APDC in Colombo in April 1997, a more vigorous programme of academic activity was not embarked upon during the period under review.

Committee on Gainful Employment of Dental Surgeons

The breakdown of unemployed Dental Surgeons who have not been employed by the state.

Year of Admission	Year of passing	Number Passing
1987 - 1988	March 1995	37
	July 1995	23
1988 - 1989	August 1995	33
	November 1995	32
1989 - 1990	March 1996	60
	September 1996	08
TOTAL UNEMPLOYED UP TO DATE		193

Due to our preoccupation with organizing 19th APDC we could not spend much time on this problem.

The bank loan through Peoples Bank is being utilized by some of the unemployed Dental Surgeons for which the SLDA issues them with the necessary documents. The Presidential Task Force is looking into the development of human resources development and is also considering the employment problem. They have proposed creation of 374 post for Dental Surgeons in Preventive sector with the creation of Community Dental Surgeons at MOH level. GDSA proposed this in 1994 and this was endorsed by the SLDA too. The Health Ministry is also trying to employ the batch of Dental Surgeons who has passed out in March 1995.

The Health Ministry is also in the process of importing 80 dental chairs and units with a loan from Asian Development Bank which should pave way for the creation of 80 jobs soon.

SLDA is proposing to the presidential task force on Health to provide duty free imports of Dental Chair, Unit, and also to provide financial assistance to unemployed Dental Surgeons to set up their practice. An active interest will be taken on this problem during this year.

Report on activities of the Committee for Out Reach Programmes

Dr. Ranjith Weerasinghe,

Chairman

Committee Members : - Dr. Ranjith Weerasinghe (Chairman), Dr. K. Krishnarasa (Secretary) Dr. Adly Mohamed, Dr. R.L.N.S. Rajapakse, Dr. M.W.J. Jayasundara Bandara, Air Cdre S.T.A. de Mel, Dr. K. Paranthamalingam, Dr. K.S.N. Ariyasinghe, Dr. Sarath Senaratne, Dr. Ravi Gurusinghe, Dr(Mrs) Sujatha Senaratne

The Out Reach Programmes were curtailed during the 1996/97 period due to our involvements in promotional and other organizational activities of the 19th APDC. However three successful out reach programmes were held at Kahawatta, Poonagala, and Mahiyangana, respectively.

At Kahawatta

This programme was held at R/ Houpe Nawalakanda Maha Vidyalyaya, Udaha Houpe Kahawatta on 13/07/1996 from 9am - 3pm. Drs. Jayasundara Bandara, Sarath Senaratne, Gamini de Silva, K. Krishnarasa, K. Paramthamalingam, M. Munindradasa, Shelton De Mel, Dr. Peiris from Kahawatta, Dr. Liyanathanthry from District Hospital, Balangoda, Ranjith Weerasinghe and Dental Surgeon attach to the mobile dental unit of Ratnapura district Dr.P.L Gunawardena participated in this programme, and the mobile dental unit was available. An oral health exhibition and other educational programmes with a lectures followed by discussion led by Dr. Jayasundara Bandara was held and this was extremely useful to the people who attended the clinic, they being mainly young school children. Nearly 700 people attended the oral health exhibition and the lecture discussions and over 300 received treatment which were mainly conservation and dental extraction.

At Poonagala, Bandarawela

This camp was held along with the medical camp of the Independent Medical Association of Sri Lanka, at Poonagala Estate, Bandarawela. Drs. Shelton de Mel, M. Munindradasa, Sajeev Ariyasinghe, Mrs. Joice Arulanandan, Anton Crooz, Cristie Dissanayaka, Asha Jayasundara, S. Paraneetharan, A. Sundar (Mrs) L.S. Sunderam, Nalin Jayatilaka, and his colleagues from Nuwara Eliya District Hospital, and Ranjith Weerasinghe participated in this programme. At this camp as well, emphasis was made on educating the people on course and prevention of oral diseases. About 300 patients were treated at this camp with dental extraction being the major treatment provided. Restoration done were mainly on A.R.T procedure with glass inomer but large cavities were filled with zinc oxide and euginol. Referrals to specialized clinics where necessary was carried out. The Sri Lanka Dental Association is grateful to Dr. K.K.Karannagoda, Deputy Provincial Director, Health, Badulla and Dr(Mrs) Joice Arulanandan, Regional Dental Surgeon, Badulla for organizing the dental surgeons, dental nurses and assistants, Dental equipment and materials, vehicles and drivers from the region, Dr. A. Sundar for organizing dental nurses, assistants and materials from Bandarawela, Dr. Nalin Jayatilaka for organizing the dental surgeons from Nuwara Eliya, Base Hospital, for the Poonagala Camp.

At Mahiyangana

This camp was held in Association with 50 th Health Camp of the Independent Medical Association of Sri Lanka. The participation of SLDA in that Camp was well advertised at Mahiyangana. Chairman Out Reach Programme SLDA was called upon to present prizes

at the social event that took place on 14.12.96. Banners were put up at the Clinic site and treatment cards carried SLDA name on it SLDA participation was well acknowledged by Dr. L. Weerasena in his speech and Dr. R. Weerasinghe too addressed the large gathering at the Opening Ceremony at which the Hon. Minister A.H.M. Fowzy was the chief guest.

The following participated at this Clinic.

- | | |
|-------------------------------|---------|
| 1. Dr. Ranjith Weerasinghe | Colombo |
| 2. Dr. K. Krishnarasa | Colombo |
| 3. Dr. Munindradasa | Colombo |
| 4. Dr(Mrs). Jayanthi Fernando | Colombo |
| 5. Dr. R.L. Wijeyeweera | Kandy |
| 6. Dr. K. Paranthamalingam | Kandy |
| 7. Dr. Lasantha Goonesekara | Kandy |
| 8. Dr(Mrs) Joyce Arulanathan | Badulla |
| 9. Dr. Damayanthi Ratnayake | Badulla |
| 10. Dr. Christie Dissanayake | Badulla |
| 11. Dr. Neela Karunathilake | Badulla |
| 12. Dr. Wijaya Kurnaram | Badulla |

Dental Assistants -

- | | |
|--------------------------|---------------------------------|
| 1. Wimalin Jayamanne | Badulla GH, DC |
| 2. H.M. Leelawathie | Mahiyangana HDC |
| 3. D.M. Dayananda | Police Training School Mabagama |
| 4. W.M. Dodi Appuhamy | Police Training School Mabagama |
| 5. L.A. Gunapala Badulla | Badulla GH |
| 6. Kamal Hassan | Dehiwela Dental Surgery |

The Dental Clinic functioned on 15.12.96 from 9am to 2.30pm approximately 400 patients including 10 vedda people attended at the clinic. Dental Health Education, Posters were exhibited. Every one who came to clinic were given toothpaste and brushes and Dental Health Education material. About 10% of People sought treatment for fluorosis. Of whom most were referred to Dr. R.L. Wijeyeweera for treatment. Suggest Ministry of Health to provide training for Dental Surgeons in the area in Bleaching flourosed teeth and also to provide the necessary material.

We thank Dr. Lakshman Weerasena of the IMPA, Dr(Mrs) Joice Arunanathan, Regional Dental Surgeon,

, Badulla, and her colleagues from Badulla, all other Dental Surgeons from Colombo, Kandy, Mahiyangana and Badulla, who participated at the Camp and all others who assisted us to make this programme success.

The Sri Lanka Dental Association was assisted by Unilever Ceylon Ltd, produces of Signal Dental Products in all Out Reach Programmes. We were provided with transport for the participating dental surgeons going from Colombo and to carry dental chairs and other equipment and material, for the camps. As well, Unilevers provided the SLDA Toothpaste, Toothbrushes, printed material on oral health to be distributed amongst people attending the out reach camps. It should be remembered here that three mobile chairs and some of the other equipment were purchased for the out reach programmes for the SLDA through the contribution made by Unilevers Ceylon Ltd for which the SLDA thank Unilevers immensely.

The Sri Lanka Dental Association received contribution form the following members at the AGM held at Koggala in June 1996. We thank theses members for their kindness and co-operation. We remind all members of the Dental Profession in Sri Lanka who received their education in Sri Lanka and Graduated out from the University: Peradeniya that we received a free education and that was through the courtesy of the people of this country. We now enjoy good life due to this free education we have received. It is therefore our obligation to serve the people of this country and do our best to help programmes such as out reach programmes of the SLDA by participating in these programmes and as well contributing financially towards this programme. I appeal to all members of the SLDA to help us in what ever way possible to carry out theses out reach programmes and if possible organize some out reach programmes.

A reasonable profit was collected from the Annual General Meeting of 1996 held at Koggala. Part of this profit has been reserved for the Out Reach Programmes. Out of this money some dental equipment and instruments were purchased by the Chairman, Out Reach Committee during his recent private visit to India. However we need more equipment, material

etc. to carry out successful out reach programmes and therefore we are need of funds.

Our committee organized some camps in areas affected by Dental Flourosis to train dental surgeons of those areas on treatment of Flourosis. The first camp was scheduled for mid march 1997 at Embilipitiya. The SLDA Council determined that we should not handle these training programmes which would now we handled by the Fluoride Committee of SLDA.

(Report on Activities of the Committee on Prevention of Malpractice)

Chairman of the Committee, Dr. Ranjith Weerasinghe,

Dr. Ranjith Weerasinghe (Chairman), Dr. K. Krishnarasa (Secretary), Dr. Adly Mohamed, Dr (Mrs) Siromani Abeyratne, Dr. Sarath Seneratne, Dr. Gamini de Silva

The SLDA through its news letter requested all members practicing across the entire country to send in information on all unqualified dental practitioners (quacks) practicing in their respective areas. It is regretted that SLDA received only two complaints one of which is probably not from a dental surgeon. One case was reported from Polonaruwa and the other from Pilimathalawa. Both these unqualified persons are apparently practicing undercover of a Bachelor of Dental Surgery Degree certificate awarded to them by an Institution called Medicina Alternativa Institute affiliated to the Open International University for Complimentary Medicines with one Anton Jayasuriya being the Chairman of the Institute, apperantly

The Sri Lanka Dental Association has initiated action against these unqualified persons, and has requested the police to investigate their legal rights to practice Dentistry and as well to check the legal rights of the said institute to issue such certificates and to take proper action on this matter. The Chairman of the Prevention of Malpractice Committee of the SLDA has already contacted the Inspector General of Police , the Attorney General, Registrar of Medical Council , Secretary Ministry of Health, Secretary, U.G.C, Secretary Ministry of Education, Director Dental Services, Ministry of

Health, Director CID, Police Head Quarters , SSP Polonnaruwa, OIC , Polonnaruwa Police Station and other relevant officers to initiate proper action against this - fraud against the Dental Profession. We have also informed the Government Dental Surgeon's Association of this fraud and hope they would take proper action on this matter. We have passed this information to Government Medical Officers Association and the Sri Lanka Medical Association. All dental surgeons should unite to fight against the issue of fraudulent Bachelor of Dental Surgery degree Certificate which is threatening to challenge the profession of dentistry in Sri Lanka.

One Dr. Balaji from India was practicing Maxillo Facial Surgery advertising himself on T.V. and other electronic media as well as in the papers . The Sri Lanka Dental Association protested to the Medical Council and the Ministry of Health against Dr. Balaji and requested the police to investigate in to this matter. A recent letter form the police indicate that the said Dr. Balaji has been allowed to practice in Sri Lanka through temporary registration by the Medical Council of Sri Lanka and registration was valid from 16.03.96 to 17 .03.97. No foreigner indulging in private practice should be given temporary or other registration for any discipline of Dental Surgery or medicine for which competent practitioners are available in Sri Lanka .

Court case at Elpitiya

Dr. N.G. Nandasiri, Dental Surgeon, District Hospital, Elpitiya complained against a dental quack practicing at Elpitiya and having branches at some towns close to Elpitiya for doing a dental extraction that has caused subsequent complications. This matter has been taken to courts and the Sri Lanka Dental Association has taken much interest in this case. This case was initially handed by the Elpitiya Police and the defendant dental quack apparently had an advantage in the case. The SLDA requested the Attorney General to take over the case and prosecution is now handed by the AG's Department. The case is yet in Courts.

Another court case against a dental quack is being examined by the Kalutara Courts. In this case the quack

who has been practicing along side the two best known dental practices at Kalutara wears Sarong and charges only Rs. 30/- for extraction. The equipment the needles and syringes are apparently hardly sterilized. Dr. R. Weerasinghe reported against this quack to Kalutara South Police . The quack was arrested and produced in courts. The case is now in Courts.

(Report of Committee on Dental Product Endorsement)

Chairman, Dr. Ranjith Weerasinghe.

Committee Members : - Dr. Ranjith Weerasinghe (Chairman), Dr. K. Krishnarasa (Secretary), Dr. Gamini de Silva, Prof. M.T.M. Jiffry, Dr(Mrs) Siromani Abayaratne, Dr. Adly Mohamed, Wng Cdr. (Dr) Asoka Amunugama

During the year 1996 / 1997 only the following products were forwarded for endorsement by the SLDA.
Signal Toothpaste -

- Signal Small
- Signal Medium
- Signal Large
- Signal Ultra and
- Signal Tata Control

Adequate samples of these products were collected by the SLDA independently and forwarded for testing by the Sri Lanka Standard Institution and Ceylon institute of Scientific and Industrial Research (CISIR) and at the Chemistry Lab at the University of Colombo. All samples of Toothpaste were tested but only Signal ordinary (Small, Medium and Large) reached the standards specified by the Sri Lanka Standard Institute. As such SLDA accepted only Signal ordinary brand of toothpaste to be professionally recognized. Unilevers (Sri Lanka) Ltd subsequently requested the SLDA to permit them to use the phrase “professionally recommended” instead of the phrase “Professionally Recognized” in their advertisements and this requested was granted by the Committee.

Hemas Marketing Ltd. has approached the SLDA requesting Endorsement for Clogard Products. They were informed of the criteria that should be followed but they have not made any positive initiative, yet.

Report of Committee on Gainful Employment of Dental Surgeons

Dr. K.Krishnarasa, Chairman

The breakdown of Dental Surgeons not employed by the state.

<u>Year of Admission</u>	<u>Year of Passing</u>	<u>Number Passing</u>
1987 - 1988	March 1995	37
	July 1995	23
1988 - 1989	August 1995	33
	November 1995	32
1989 - 1990	March 1996	60
	September 1996	08

Total not employed by state - 193

Due to our preoccupation with organizing 19th APDC we could not spent much time on this problem. Only one meeting was called and even that could not be held due to lack of attendance. The bank loan through Peoples Bank is being utilized by some of the unemployed Dental Surgeons for which the SLDA issues them with the necessary documents. The Presidential Task Force is looking into the development of human resources development and is also considering the employment problem. They have proposed creation of 374 post for Dental Surgeons in preventive sector with the creation of Community Dental Surgeons at MOH level. GDSA proposed this in 1994 and this was endorsed by the SLDA too. The Health Ministry is also trying to employ the batch of Dental Surgeons who has passed out in March 1995.

The Health Ministry is also in the process of importing 80 dental chairs and units with a loan from Asian Development Bank which should pave way for the creation of 80 jobs soon.

SLDA is proposing to the presidential task force on Health to provide duty free imports of Dental Chairs Units, and also to provide financial assistance to unemployed Dental Surgeons to set up their practice. An active interest will be taken on this problem during this year.

(Proposal for Production of Oral Health Education Material SLDA Sub Committee Health Education & Publicity)

Dr. Adly Mohamed- Chairman

General Objectives

To Produce OHE material in order to strengthen OHE programmes and bring about increase in knowledge and changes in behaviour for promotion of good oral health.

Specific Objectives

1. To propagate good Oral Health
2. To impart knowledge on Dental Diseases and Oral Cancer and show how they could be prevented.
3. To produce OHE material to teach patients in a clinical environment.
4. To produce OHE material for various target groups.
5. To show how Dental Diseases are treated in a clinical environment.
6. To show how preventive methods are adopted in clinical practice.
7. To promote judicious use of Dental Services.

Methods and Approaches

1. Printed material
 - Posters
 - Leaflets
 - Flip Charts
 - Flip Books
 - Stickers
2. Models
3. Videos and audio cassettes.

Target Groups

1. Children and adolescents.
2. Parents
3. Patients coming to hospitals.
4. For use by Dental Surgeons in clinics.
5. For use by Medical and other health personnel.
6. Audience at SLDA outreach programmes.

Methodology

1. An expert committee on Health Education Material Production to be formed and appropriate material designed.
2. Pre-testing of HE material.
3. Evaluation to be done by directing a questionnaire survey on patients and people exposed to these H.E. material.

Budget of Activity

1. Idea Development - Workshop
2. Consultations.
3. Art Work
4. Development of material
5. Pre-testing of H.E. Material
6. Printing.

(Report of Subcommittee on Health, Education & Publicity)

Dr. Adly Mohamed - Chairman

Two articles pertaining to oral health care was produced and published.

1) Teeth for life time

This was published with the APDC '97 supplement in the Daily News of 03/04/97.

2) Oral Health Programme in Sri Lanka.

The programmes conducted in Sri Lanka was published in the Dental News Supplement. The 19th APDC, Colombo, Sri Lanka 3rd - 7th April 1997.

3) Poster Exhibitions

A poster exhibition was held at the Lionel Wendt theatre Colombo 7 on 19/03/97.

It was declared open by the Hon. Minister & Health, Highways and Social Services Hon. A.H.M. Fowzie and Guest of Honour was Secretary of Health, Dr. Dudley Dissanayake.

The exhibition was on Oral Health and Presentation of Dental diseases.

The Children in Western Province Schools took part and were categorized into 3 groups as follows:-

- 1) Grade I to Grade IV
- 2) Grade V to Grade VII
- 3) Grade VIII upwards

Prizes and certificates were distributed to the first three in each category. This was sponsored by Unilever(Ceylon) Ltd.

- 4) Dental Health Education and SLDA Out reach Programmes were conducted by Dental Surgeons at the following out reach programmes:-
 - 1) Mahiyangana Dental Camp
 - 2) Bandarawela Dental Camp
- 5) Proposal for production of Oral Health Education Material

This was put forward to the SLDA Council so that a systematic method and approach could be followed in producing Health Education Material. This will be published on the SLDA Journal.

Asia Pacific Dental Health Poster Competition

Dr.K.Krishnarasa
Chief Organiser

Through results obtained from second national oral health survey held in 1994-95 Sri Lanka dental association became aware of the low dental awareness and dental knowledge among the school children. In order to create an increased dental awareness and knowledge among school children and to mark the Asia Pacific oral health day the Sri Lanka dental association organised a dental health poster competition.

Schools in Colombo districts were requested to submit posters on the theme "Let us look after our teeth". The posters were categorised into three groups depending on the class the student was studying.

- Group 1-Year 1 to 4
- Group 2-Year 5 to 7.
- Group 3-Year 8 and above

More than 5000 posters were received from about 100 schools in Colombo district. The best 200 posters from those received were chosen giving weightage to the class of the student, the facilities available in the school, artistic talents shown and proper useful oral health messages delivered. All this 200 posters were displayed at a poster exhibition on the 19th March 1997 at the Lionel Wendt auditorium. Prizes were awarded to the best three posters in each category. In addition in order to create an increased dental awareness, the best posters from 50 schools too received special awards.

The oral health poster exhibition was declared by the Hon.Minister of Health, Highways and Social services Mr. A.H.M. Fowzie at 8.30 a.m on 19th March 1997. Secretary ministry of Health, Highways and Social Services Dr. Dudley Dissanayake and other distinguished members of the profession attended the opening ceremony. Prizes were distributed on the same day at 9.30 a.m. The exhibition was opened to the public from 10 a.m to 4 p.m. Large number of school children, dental auxiliaries and public visited the exhibition at Lionel Wendt Auditorium. Our thanks goes to the sponsors Messrs Unilevers (Cey) Limited for the valuable prizes, the staff of Health Education Bureau for assistance in selecting the prize winners and the School Dental Surgeons and school dental therapist for assistance in organising the competition.

19th Asia Pacific Dental Congress and Trade Exhibition
3rd to 7th April 1997- BMICH, Colombo

19th Asia Pacific Dental Congress-Colombo- April 1997

Dr. Ranjith Weerasinghe - General Secretary, 19th APDC Organising Committee

The 19th Asia Pacific Dental Congress was held successfully in Colombo from 3rd to 8th April 1997.

The Sri Lanka Dental Association became a Member of the Asia Pacific Dental Federation in 1986. The SLDA made a bid to host an APDC at the 14th APDC held in Seoul Korea in 1989. This bid was considered and approved and the SLDA was awarded to host the 18th APDC in 1996. However, 1996 being the year of the 50th Anniversary of the Indian Dental Association, India was given the opportunity to host the APDC and the SLDA agreed to take the 19th APDC.

The 19th APDC in Colombo was acclaimed by almost all Foreign Delegates and the APDF Officials as one of the best, if not the best APD Congress ever held. Some Senior Delegates however expressed that the 19th APDC was the best they have attended. The SLDA is proud that we have received such praise, but we acknowledge that there are a few shortcomings which possibly were unavoidable. It should be noted here that the SLDA organized the 19th APDC against many odds while facing many disadvantages in the Ethnic War, Bombs in Colombo and Suburbs, severely adverse Media Reports which were mostly exaggerated and at times twisted reports on the ground situation in Sri Lanka in foreign electronic Media and the Press. Anxiety and fear expressed by members of most of the National Dental Associations who are members of the APDF and organized attempt to take away the APDC and award it to a country that can generate better income for the APDF were some of the major factors against which the 19th APDC was organized by the SLDA. The members of the Organizing Committee of the APDC and members of the Council of the SLDA in the recent years, all worked tirelessly with some of them working beyond limits and finally bringing excellent

results by way of a very successful 19th APDC, for which the entire Dental Profession of Sri Lanka should thank those who organized this mega event.

It is with deep appreciation that I note the role played by the President of the Sri Lanka Dental Association, Dr. Gamini de Silva, who led the whole organization from front making much sacrifices to see that the APDC was well organized and brought good results for the Dental Profession and the people of this country.

It is with much regret and a deep sense of sorrow that we note that the former General Secretary of the 19th APDC Organizing Committee, Dr. Neil Gunawardhana, passed away suddenly, without living to enjoy the success of the 19th APDC. The SLDA appreciates the work done by Dr. Neil Gunawardhana as General Secretary of the Organizing Committee and I take this opportunity to express our deepest sympathies to Mrs. Gunawardhana and the family. Dr. Neil Gunawardhana was a stalwart in the Dental Profession in Sri Lanka, a very senior member of the SLDA who was highly respected for his impeccable qualities and principles.

19th APDC Organising Committee

Chairman	- Dr. Reggie Goonetilleke
General Secretary	- Dr. Ranjith Weerasinghe
	- Formerly Late Dr. Neil Gunewardhana
Chairman	- Secretariat - Dr. Gamini de Silva
Co-Chairman	- Secretariat - Dr. Kumar Warnakula
Chairman	- Scientific Programme
	- Dr. K.D.G. Saparamadu
Chairman	- Public Relations & Receptions
	- Dr. Sunil Fernando
Chairman	- Trade Exhibition
	Dr. L.S.W. Dassanayake

- Chairman - Promotion & International Relations. Dr. Hilary Cooray
- Chairman - Tours & Accommodation
Dr. Mano Fernando
- Chairman - Publication - Prof. M.T.M. Jiffry
- Chairman - Finance - Dr. Sunil Gunaratne
- Chairman - Ceremonies & Social Programme
Dr. (Mrs) Ira Ratnayake
- Chairman - Military Dentistry- Wng Cdr. (Dr)
A.M.B. Amunugama
- Chairman - Security - Surg. Rear Admiral
Arith Peiris
- Chairman - Accompanying Persons Programme
Dr (Mrs) Siromani Abayratne
- Chairman - Golf Tournament
Dr.W.G.Wimaladharm
- Advisors - Dr. Shelton de Mel &
Dr.S.F. Jayasinghe

Sub Committees

Trade Exhibition Sub Committee

Dr. L.S.W. Dassanayake (Chairman), Dr. Sunil Gunaratne, Dr. C.H. Chang, Dr. Gamini de Silva, Dr. R.L.N.S. Rajapakse, Dr. N.H.R.H. Senaratne

Scientific Programme Sub Committee

Dr. K.D.G. Saparamadu (Chairman), Dr. K. Krishnarasa, Dr (Ms) P. Samaranyake, Prof. N.A. de S. Amaratunga, Dr (Ms) P. Rodrigo, Dr. A.M.O. Peiris

Public Relations & Receptions Sub Committee

Dr. Sunil Fernando (Chairman), Dr. J.N. Chinniah, Dr(Mrs) Padmini Jayasinghe, Dr. (Mrs) S. Nagendran, Dr. K. Warnakula, Dr. (Mrs) D. Warnakula, Dr. M.F. Jameel, Dr. M. Stanislaus, Dr. S. Dharmatilleke, Dr. (Mrs) I.W. Amarakoone, Dr(Mrs) Sita Rajakaruna, Dr. Adly Mohamed, Dr.(Ms) Jayanthi Fernando, Dr. K. Sajeev Ariyasinghe, Dr. C. Gunasekera, Dr. S.F. Jayasinghe, Dr. Hillary Cooray, Dr. Ranjith Weerasinghe, Mr. Asanga Karunaratne

Ceremonies & Social Programme Committee

Dr. (Mrs) Ira Ratnayake (Chairperson), Dr. (Mrs) Anoma Wijeratne, Dr. (Mrs) Tecla Jayanethie, Dr. (Mrs) Savithri Samaranyake, Dr. (Mrs) Yvonne Dwight, Dr. Lakshman Wijeyeweera, Dr. Sarath Senaratne, Dr. Ravi Gurusinghe, Dr. Chandana Mendis, Dr.Ranjith Mendis, Dr. Prasad Amaratunga, Dr. Sajeev Ariyasinghe.

Promotion & International Relations Sub Committee

Dr. Hillary Cooray (Chairman), Dr. Ranjith Weerasinghe, Dr. Nalin Jayatilake, Dr. Sarath Seneratne.

Tours & Accommodation Sub Committee

Dr. Mano Fernando (Chairman), Dr. Nalin Jayatilake, Dr. Sarath Seneratne, Dr. Ravi Gurusinghe, Dr. K. Paranthamalingam, Dr. K. Shanmuganathan

Secretariat Sub Committee

Dr. Gamini de Silva (Chairman), Dr. Kumar Warnakula (Co-Chairman), Dr. Shelton De Mel, Dr. Sarath Seneratne, Dr. Ravi Gurusinghe, Dr. J.A.P. Jayasinghe, Dr. K. Shanmuganathan, Dr. Nalin Jayatilake, Dr. Sajeev Ariyasinghe, Dr. (Mrs) Savithri Perera, Dr (Ms) Jayanthi Fernando, Dr. (Mrs) Tekla Jayanethie, Dr. (Mrs) Sama Weerapperuma

Accompanying Persons Programme Sub Committee

Dr. (Mrs) Siromani Abayaratna (Chairperson), Dr. (Mrs) Savithri Samaraweera, Dr. (Mrs). Sujatha Seneratne, Dr. (Mrs) Sama Weerapperuma, Dr. (Mrs) Yvonne Dwight

Publications Sub Committee

Prof. M.T.M. Jiffry (Chairman), Dr. (Mrs) Eshani Fernando, Dr. C. Gunasekera, Dr. (Mrs) P. Konthasinghe, Dr. (Mrs) F.N. Shahim

Finance Sub Committee

Dr. Sunil Gunaratne (Chairman), Dr. Gamini de Silva, Dr. Reggie Goonetilleke, Dr. L.S.W. Dassanayake, Dr. Hillary Cooray

Golf Tournament Sub Committee

Dr. W.G. Wimaladharm (Chairman), Dr. (Mrs) P. Duniwila

Military Dentistry Sub Committee

Wng. Cdr. (Dr) Asoka Amunugama (Chairman), Brig. Thilak Jayaweera, Surg. Capt. Sarath Fernando

Security Sub Committee

Surg. Rear. Admiral Arith Peiris (Chairman), Brig. Tilak Jayaweera, Surg. Capt. Sarath Fernando, Wng. Cdr. Asoka Amunugama

Sponsorships and other Assistance

Unilever (Cey) Limited "Signal", Stassen Exports Ltd "Colgate", A. Bours & Co. Ltd., Ceylon Brewery Ltd.,

19th APDC Organising Committee



Seated Left to Right: Dr. (Mrs) Siromani Abayaratna, Dr.Hillary Cooray, Dr. L.S.W. Dassanayake, Wing Cmdr (Dr) Asoka Amunugama, Dr. Gamini De Silva, Dr. Reggie Goonetillake, Dr. Ranjith Weerasinghe, Dr. K.D.G.Saparamadu, Air Cdre (Dr) Shelton de Mel, Dr (Mrs)IraRatnayake.

Standing Left to Right: Dr.W.G. Wimaladharm, Dr.Kumar Warnakula, Dr. Sunil Fernando, Dr.Sunil Gunaratne, Rear Admiral (Dr) Arith Peiris, Prof.M.T.M. Jiffry, Dr. Mano Fernando.

Ceylon Tobacco Company, Abans Ltd, CIC Ltd, Union Assurance, Glaxo Welcome Ceylon Ltd, Astron Ltd, Chivkonzer & Co. Ltd

PCO Jet Asia (Pvt) Ltd
Ace Travel Convention Ltd - Official Travel Agent
Hatton National Bank - Official Banker
Uni Walkers National - Official Supplier of office equipment for the two secretariats at BMICH and Galadari Hotel
Trade Exhibitors

The SLDA thank everybody, every organization /firms who had assisted the SLDA to make the 19th APDC a grand success

Attendance at the 19th APDC

Delegates - Local - 370 Students - 100 (30 helpers)

Delegates - Foreign - 94 Spouses - 14 Students - 4,
APDF Council Members - 14
Czech Republic Dental Surgeons - 101 (attending for a one day)

The SLDA thanks all students who came in as helpers to the APDC, and Dr. R.L. Wijeyeweera for arranging these students from the Dental Faculty Peradeniya.

Trade Stalls - 41

The Opening Ceremony was successfully held on 3rd April 1997 at the BMICH with the Minister of Health, Highways and Social Services, Hon. A.H.M. Fowzie as the chief guest. It was grand and glittering and depicted Sri Lankan culture, Pre Congress/Post Congress workshops were held on 3rd & 8th April 1997. The Trade Stalls were declared open on 4th April 1997 by the Minister of Trade Hon. Kingsley T. Wickramaratne. The Scientific Sessions were held 4th to 7th April 1997 with four parallel sessions, with appreciable attendance.

Donation to the Faculty of Dental Sciences Peradeniya

We thank Dr. Raj K Raja Rayan Vice Dean, Faculty of General Dental Practitioners, Royal College of Surgeons who was instrumental in organizing the donation of equipment valued over £ 6000 to the Faculty.

Finance

The Congress was a financial success too. We will be able to keep our promise to the APDF and pay the US\$ 40,000/- as promised. In addition the SLDA will benefit by a profit of approximately Rupees 2.0 million.

Convocation ICCDE

A Convocation of the International College of Continuing Dental Education, of the APDF was held on 5th April 1997. 51 Local Dental Surgeons, and 7 honorary fellowships, and 11 Foreign Dental Surgeons received fellowships at this Convocation.

Opening Ceremony

Dr. (Mrs) Ira Ratnayake
Chairperson- Ceremonies and Social Events

April is the month of plenty, sunshine and family reunions. The 19th Asia Pacific Dental Congress (APDC) was aptly held in April for the annual reunion of the National Dental Associations of the Asia Pacific Region.

The opening ceremony of this mega event in the history of dentistry in Sri Lanka was scheduled for the 3rd of April, 1997. From the 2nd of April the Bandaranaike Memorial International Conference Hall (BMICH) which was the venue of the 19th APDC was agog with activity. Checking and rechecking of every detail and rehearsals went on from the morning of the 2nd. Dr. (Mrs) Yvonne Dwight succeeded in getting all the flags of the participating countries and the long line of poles with the fluttering flags along the drive, announcing this important event. The Secretary General of the Asia Pacific Dental Federation (APDF) had arrived and was looking around. The giant pandal to greet the participants and the guests was put up at the entrance to the sprawling BMICH premises throughout the night of the 2nd.

Every piece of the jig-saw of the opening ceremony was put into place on the 3rd by each of the Committee Members who volunteered to help me to make the opening ceremony a memorable event. Dr. (Mrs) Savithri Samaraweera had a difficult job seating an expected two thousand guests in the Auditorium build to accommodate

one thousand five hundred. In an effort to make as many happy in the seats allocated to them, Savithri spent a fortnight writing and meticulously coding the invitations. Even with eyelids drooping with fatigue a bright smile flashed across her face at the most trying moments on the 3rd.

Dr. (Mrs) Teckla Jayanethie had worked tirelessly for two months trying to execute an idea of a twenty foot wide globe with the APDF countries. With just a picture on paper of my idea, she did execute it to the satisfaction, accuracy and appropriateness of the occasion.

Dr. Lucky Wijeyaweera was entrusted with sprucing up and training twenty undergraduates of the Faculty of the Dental Sciences, as usherers and later on as helpers for the Scientific Programme. For the first time in the history of any opening ceremony young men and women in their national dress and bare feet served the profession to the utmost in their roles. Throughout the Congress, they were well groomed, helpful and obliging at all times. Certainly a good reflection on University undergraduates.

It was an anxious wait for the group of singers to arrive from Peradeniya. Dr. Ravi Gurusinghe was shuttling between the Dental Institute, my residence and the BMICH looking for them. It was a relief to see them at 5.30pm as the evenings programme was commencing with Jayamangala Gathas.

Dr. Prasad Amaratunga had the drummers and the dancers tailored to the occasion. Dressed in their traditional garb they lined the steps leading up to the building like a guard of honour. Under Prasad's directions they played their role thereafter very admirably.

Two elephants at the bottom of the steps gave royalty to the occasion.

At 6pm, the guests started arriving, each group stepping into a different beat by the drummers. Dr. Chandana Mendis was at hand to welcome each and every guest. The usherers showed them the way to the Auditorium as they walked past an aisle of Gokkola (tender coconut fronds), lamps with flickering lights, placed on either side

of the Red Carpet. Near the entrance to the Auditorium a tall lamp made of Gokkola depicted talent and tradition. At the entrance to the Auditorium under the guidance of Dr(Mrs) Savithri Samaraweera the usherers in their light orange and white national dress showed the guests to their seats.

At 6.30 pm the drums beat loud and the conch shells blared announcing the arrival of the Chief Guest. At the entrance he was greeted and introduced to the Council Members of the APDF and the members of the Organizing Committee of the 19th APDC. To the sound of Magul Bera, the dancers led the guests to the Auditorium. As the guests entered the Auditorium the curtain on the stage rose gradually. At the edge of the stage fifteen large white lotuses crafted intricately with tissue paper were lighted up as an offering to the Gods. The backdrop on the stage was a large blue twenty foot long oval shaped globe with the countries of the APDC marked in incandescent red, with the Capital of each country indicated. The APDF and the SLDA flags draped from stands on either side of the Globe. The Office Bearers of the APDF sat at the table skirted in red with garlands of white jasmine. The lectern on the far right was draped with the SLDA banner with a white jasmine garland across it. On the far left corner of the stage a tall traditional brass lamp was decorated with pink and white lotuses.

To the thunder of several drums, the clatter of cymbals, the blowing of conch shells and flashes of light, the Congress was declared open by the Chief Guest.

At the roll-call, each country was given an ovation with drums, the Capital of that country lighted up as a flag bearer walked up. Dr. (Mrs) Anoma Wijeratne had a flash light focused on the delegates of that country seated below the stage. Speeches over, Honours awarded and a vote of thanks given, the official opening of the Congress came to a close, exactly on time. Mr. Arun Dias Bandaranaike, the talented compere of repute, kept the audience informed of every event and captivated, with a short briefing on the Cultural Programme that was to follow.

Sponsored by the Ceylon Tobacco Co. Ltd., Channa Wijewardena's Troupe enthralled the audience with a

“Symphony of Drums and Dance”, bringing on to the stage our Culture of over two thousand five hundred years. As the evening wrapped up, the Guests, Invitees and Dental Surgeons walked out of the Auditorium to the West wing of the spacious Bandaranaike Memorial International Hall for a reception and camaraderie.

Golf Tournament

Dr. W.G. Wimaladharm

Chairman - Golf Committee

One of the traditional features of the APDC is the Golf Tournament. This is a popular and major extra Congress activity and was held on 3rd April, 97 at the Royal Colombo Golf Club. It was in the form of a Stableford competition over 18 holes, and tee off was at 7.30 am as the morning dew was clearing.

We had 08 competitors including one Sri Lankan, One Japanese, One Malaysian, 2 Singaporeans and 3 Koreans. The Tournament took off with great enthusiasm and a keen competitive spirit. This was followed by the prize giving and a grand lunch. Two splendid trophies were donated by Mr. Ananda Wimaladharm for the winner and the Runner-up.

Dr. Gamini de Silva President SLDA gave away the winner's Trophy to Dr. H.T. Cho and Mr. Ananda Wimaladharm the runner-up Trophy to Dr. K.I. Lee. While Mr. S. Shakrollachi won the prize for the closest to the pin and Mr. S.S. Na won the prize for the longest drive. The prizes were donated by Union Assurance and Era Global Enterprises. The sponsors of the tournament were Union Assurance Ltd. Kavo Germany, Abans Ltd. and CIC Ltd. All soft drinks were supplied by kind courtesy of messes Pure Beverages Co. Ltd.

Welcome Reception

Dr. Sunil Fernando

Chairman - Public Relations & Receptions

Following the Opening Ceremony, the guests started strolling in to the reception area to the glamorous strains of lively music ably provided by the Sri Lanka Navy Band.

The tiled grand verandah of the BMICH on the west side, together with the lawn just outside it, was tastefully lit in

a manner fit for the evening function. Spot lights were focused on the trees while the small bamboo bushes were gaily decorated with fairy lights. Lush greenery and foliage plants, systematically arranged on the verandah gave an air of tranquillity to and otherwise bare area. Helium filled balloons in bunches bearing the letters “19th APDC SRI LANKA” floated freely in the breeze, with lights flashed on them.

The experienced Navy Band even played many a popular song of the member countries of the APDF - much to their surprise.

Catering was handled by Mount Lavinia Hotel Catering Services. Food was delicious and plentiful, elegantly served at ten well laid out stations. Serving of beer, fruit punch and soft drinks proceeded smoothly, uninterrupted right through the evening.

The total number of guests would have been about one thousand. They enjoyed a very pleasant evening's relaxation on a care-free note in an atmosphere that was just right for that.

Scientific Programme

Dr. K. Krishnarasa

Secretary - Scientific Programme Committee

The Scientific Programme of the 19th APDC were held from 3rd April 1997 to 8th April 1997 and consisted of Guest Lectures, Symposiums, Free Communications, Poster Presentations, Pre Congress and Post Congress Limited Attendance Courses.

Guest Lectures

There were 17 Guest Lectures presented by 14 Guest Lecturers from U.K., U.S.A, Hong Kong, South Africa and India. Most of the Lectures were of one hour duration and covered every aspects of Dentistry. These lectures were held in the main assembly hall and were well attended by the Dental Surgeons.

Symposiums

There were 21 Symposiums where 72 papers presented by 48 eminent lecturers from 10 countries. The

Symposiums were on the following aspects of Dentistry. History of Dentistry, Practice development, Restorative Dentistry, Periodontal disease, Endodontics, Paedodontics, Oral Cancer, Prosthetics, Implants, Epidemiology, Dental Education, Orthodontics, Cardiology, Adhesive Dentistry, Temporo Mandibular Dysfunction, Jaw Deformities, and Infection control. These lectures were held in Committee Room A and B of the BMICH and the duration of the lectures ranged from 60 to 30 minutes.

Free Communication

Free communication papers were of 20 minutes duration and 35 lecturers presented 42 papers. These lectures were attended by large number of Dental Surgeons may be because of wide variety of subjects presented. These were held in Committee room C of the BMICH.

Poster Presentation

There were 8 poster presentation by 5 foreign Dental Surgeons from Germany, U.K., Japan and India. This was held in Committee Room E of BMICH.

Pre and Post Congress Courses

These courses were held on 3rd April 1996, and 8th April 1996 at Hotel Galadari. There were 8 courses and 155 Dental Surgeons took part in these courses. The course were on the following aspects of Dentistry. Crown and Bridge techniques, Full denture prosthesis, Partial denture design, Fixed Orthodontic appliances, Implant Dentures, Endodontics, use of Glass Ionomers, and twin block and functional appliances. Crown and Bridge techniques was the most popular course and was attended by 69 Dental Surgeons. Endodontics and Implant Dentures were next on popularity. However it must be mentioned that the Endodontics was the only hands on course held and the participants took and active part in this one day course. In addition to these programmes there was a Defence Forces Seminar where there were three presentations.

We also published an abstract book which was well recognized by the local and foreign participants for its high quality. More than 400 local Dental Surgeons and about 125 foreign participants attended the Scientific Sessions which could be considered a big success by Sri Lankan standards because of its limited dental manpower.

Trade Exhibition

Dr. L.S.W. Dassanayake
Chairman

The 19th Asia Pacific Dental Congress and Trade Exhibition was held in Colombo 3rd to 7th April 1997 and was attended by a large gathering of local and foreign delegates.

Minister of International & External Trade, Commerce and food, Kingsley Wickremeratne in his message to the Trade Exhibition said he was aware of the great contributions made by the Sri Lanka Dental Association by way of undertaking various development projects, promotional programmes, research and development projects for the benefit of the people and also to upgrade the professional standards of its membership.

"The holding of the Congress Sessions and the Trade Exhibition this year in Sri Lanka undoubtedly will bring into focus the capabilities of our professionals as well as the capacities of the trade and may even help elicit interest among the business community to come into partnership for investment in the sector. Trade Exhibitions are a proven marketing tool in getting across new ideas and innovations which could eventually end up as fine business propositions. It is my firm belief that the private sector can play an important role in the service sectors of the country in a far more efficient manner than the Government, if right partnership is established with the professional community" he said.

"Sri Lanka certainly has an impressive record as far as the health status of its population is concerned. This, we have been able to achieve through heavy public spending and also due to dedication and excellent standards of services maintained by our medical professionals. But if we are to continue with this public mission with greater quality assurance in a scenario of exponential development of technology and new knowledge and ever increasing costs of services, the state sector alone will not be able to fulfill that."

"An alliance among the State, the Professional, and the Investor Community is much desired. In that context this type of promotional and awareness programmes can serve a great purpose by way of bringing all the partners together for a bigger purpose." he said.

In his welcome address Dr L.S.W. Dassanayake, Chairman, Dental Trade Exhibitions said that -

“In the coming Millennium the Asia Pacific Region is predicted to be the “Growth Pole” in a global context with an expected growth rate of over 6-7 percent, thus making prospects for dental services and products most favourable. It is certain that growth will not be even throughout the region, depending on their economic policies. Therefore, service deliverers and manufactures may need to identify and target the markets offering the highest potential, accordingly.

Along with the economic growth there is increasing affluence in the society which predicts that dental health care and the cosmetic concepts will be increasingly important.

If the demand for dental products and services together with increasing affluence and purchasing power are channeled through sound advertising and marketing techniques a high growth in the industry is foreseen.”

He added that Sri Lanka with its liberalized economy having the infrastructure to support rapid growth could easily be an important supply point for the one billion strong South Asian Market. With the preferential trade arrangements being initiated under SAARC, lower tariffs and the progressive elimination of non trade barriers to the trade in the sub region, Sri Lanka can serve as the hub for products manufactured in the country but with projected destinations through out South Asia.

“A large number of international dental manufacturers and principals form countries like Japan, Germany, U.S.A., UK, Australia, India ,Singapore, and Sri Lanka have brought in equipment, instruments and dental materials to the exhibition. We are fortunate that they are participating in our Trade Exhibition to share the latest technological developments among the Asia Pacific Region “ Dr. Dassanayake added.

He also thanked the Minister and the participants for their support on behalf of the SLDA. Large gathering at Dental Trade Exhibition -

The Dental Trade Exhibition which is an important arm of the 19th Asia Pacific Dental Congress was held recently

at the Bandaranaike Memorial International Conference Hall in Colombo. This mega event where exhibitors from many countries of the world and Sri Lanka participated, was declared open by Kingsley T. Wickramaratne, Minister of Internal and External Trade Commerce and large gathering of foreign and local delegates, past and present council members of the Asia Pacific Dental Federation / Asia Pacific Regional Organization (APDF / APRO), of the World Dental Federation, Exhibitors and distinguished guests. The organization of this exhibition which was undertaken three years ago was solely due to the untiring efforts of the Chairman and the Sub - Committee of Trade and Exhibition.

A dental exhibition of this magnitude with a large participation of foreign and local trade which also included some export products as gems/jewels / diamonds was organized for the first time in Sri Lanka.

This attracted many members of the dental profession and also others interested in the technical back up which would ultimately pave the way to high quality work . It was encouraging to see that about forty - five trade booths of international standards were being patronized by delegates. New dental equipment which has been exhibited for the first time in Sri Lanka, new instruments, and updated dental materials and oral care products enabled the delegates to update their knowledge and expertise in the march to the 21st Century.

MILITARY SEMINAR

Wing Cdr. Asoka Amunugama

Chairman

The military seminar of 19th APDC , Colombo was one of the very successful activity of the Congress. It was held at BMICH, main congress venue on afternoons of 4th and 5th April and was organized under the aegis of Commission on Defence forces Dentistry of the APDF. The theme of the section meeting was “Oral Health Care of Battle Casualties” which attracted many participants from several countries. The chief guest Admiral Ananda Silva, ceremonially inaugurated the seminar by lighting the oil lamp, a custom in Sri Lanka. Dr. Jhee , the Chairman of I.C.C.D.E while congratulating the organizers, highlighted the importance of increase professional activities of the Dental Officers of the

Defence Forces. He said that college will have more and more interaction with the commission on Defence forces dentistry. Dr. Reggie Goonetilleke, the President of the APDC mentioned that historically the development of maxillofacial surgery was through the dental and oral surgical requirements of battle casualties of past wars. The chief guest Admiral Silva thanked the organizers for the invitation. Quoting his vast experiences in Sri Lanka Navy as well as military organizations in other countries he noted the contribution made by dental officers was not just a welfare measure but is high morale boosting factor for the front line military personnel. He pointed out that modern day forces have gone for more sophisticated weaponry and strategies. The supporting dental and medical facilities and the care should equally be of high standard. Thus he appreciated the benefits that would accrue to all dental officers of the forces by attending updating conferences of this nature Wg Cdr Asoka Amunugama, Chairman, Commission on Defence Forces Dentistry thanked every person that helped and the Speakers who were to make very interesting presentation.

Dr. M. Muthumala made the first presentation titled Battle Injuries to the Face - Sri Lanka Experience. It was based on study of cases brought to Anuradhapura General Hospital from 1992-1995. He highlighted the value of tracheotomies in reducing the death rate. It was a vivid presentation of injured and their gradual rehabilitation. Dr. T. Jayaweera making 2nd presentation titled Dentistry beyond Death and its Military Significance elucidated the techniques that are used to identified the unknown human remain in war and major disaster situation, using dental and skull characteristics. The third presentation titled Rehabilitation of Battle Casualties was presented jointly by Dr. V. Jayasinghe, Dr. P.G. Wickremasooriya, Dr. Hillary Cooray. It detailed the in manner in which the battle casualties of present ethnic war being handled up to the main treatment centres and the subsequent management and treatment using both surgical and advanced prosthetic techniques.

Banquet

Dr. Sunil Fernando

Chairman - Public Relations & Receptions

A grand banquet was held at the Bougainvillea Ballroom, Galadari Hotel, on 5th April 1997, as part of the Social events programme of the 19th APDC.

The Ballroom accommodated about 340 guests. They received gifts at the door as they came in.

Music for the evening was provided by the elegant Peter Prins' Band. Mr. Faizal Bongso kept the crowd entertained right through the evening in his own inimitable style.

A toast for the President of Sri Lanka, the APDF and the Foreign Delegates was proposed by Dr. Sunil Fernando. Witty after dinner speeches were given by Dr. (Mrs). Siromani Abayaratna and Dr. Oliver Hennedige.

Cabaret items were by Channa Wijewardene dance troupe "Anganawo".

The dinner was a Western sit-down menu comprising five courses.

Dancing generated a lot of interest among the guests and the floor was packed to capacity and overflowing. Several competitions were conducted while the dance was in progress. It was past 1am the following morning when activity finally came to a close.

Dr. Malcolm Stanislaus worked with a lot of enthusiasm to ensure the success of this event.

On the whole, the guests had a memorable experience and an evening full of fun, excitement and good cheer.

19th APDC through Camera Eye



Address by Dr. W.G. Wimaladharama, Chairman - Golf Tournament.



Korean Participants with Dr. W.G. Wimaladharama.



APDF Council Members arriving for the Opening Ceremony.



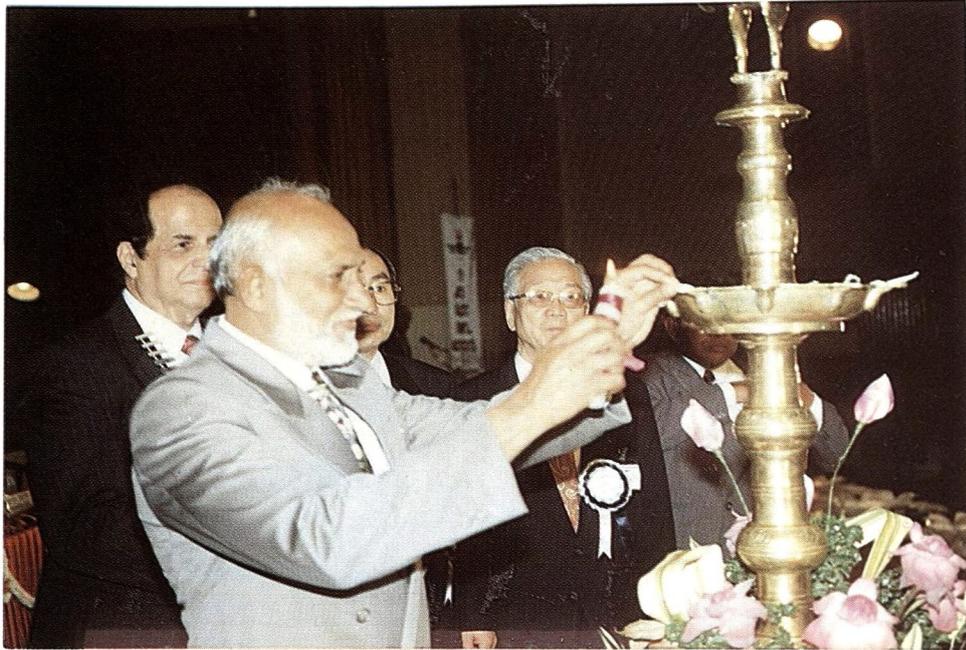
Arrival of Chief Guest - Hon. A. H. M. Fowzie - Minister of Health, Highways & Social Services.



Address by Dr. Gamini de Silva - President, Sri Lanka Dental Association.



Address by Dr. Keki Mistry - Outgoing President - APDF / APRO.



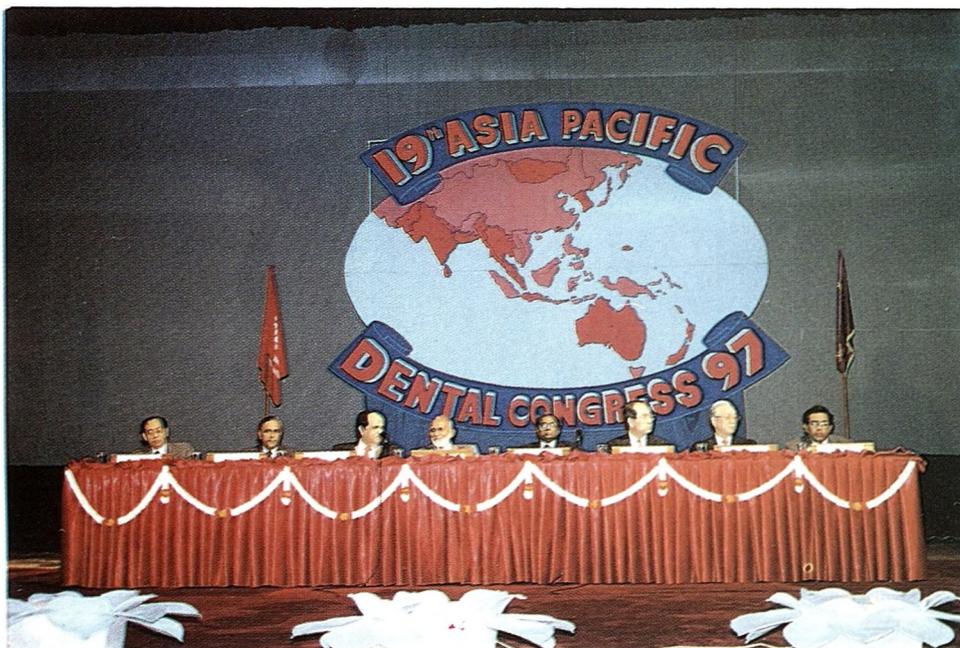
Traditional lighting of the Oil Lamp by the Chief Guest- Hon. A.H.M. Fowzie, Minister of Health, Highways & Social Services.



Lighting of the Oil Lamp by Dr. K. Tsurumaki - President-Elect FDI



Induction of Dr. Reggie Goonetilleke - President APDF/APRO by Dr. Keki Mistry - the Outgoing President.



The Dais.



Presentation of Plaque of Achievement to President - SLDA
by Dr. Keki Mistry.



Roll Call of Member Nations.



Presentation of Past President's Badge to Dr. Dixon de Silva.



Vote of Thanks by Dr. Ranjith Weerasinghe, General Secretary
- 19th APDC Organizing Committee



Part of Audience.



Cultural Show.



Reception.



Opening of the Trade Exhibition by Hon. Kingsley T. Wickremaratne- Minister of Trade.



Levers Stall.



Viewing the Trade Exhibition by Hon. Kingsley T. Wickremaratne - Minister of Trade.



Closing Ceremony - Address by Guest of Honour -
Dr. Jhee Heun Taik



Closing Ceremony.

INSTRUCTIONS TO AUTHORS

The SLDJ publishes following categories of articles which have relevance to Dentistry and allied sciences.

1. Leading Article- One article per issue. It may be solicited by the Editor. Authors are welcome to submit leading articles on current topics of interest, one's expertise or commentaries on general practice etc. They should be approximately 1500 words in length. References should be 20 or be less.

2. Reviews - Reviews are detailed surveys of published research pertinent to dentistry and associated sciences. They should be critical in nature and should not normally exceed 3000 words or 30 references.

3. Papers - Articles resulted from research work belong to this group. Results from routine clinical examinations or laboratory investigations will not be considered under this category. Subjects may vary from clinical trials to basic science research, historical analysis to dental economics. They should not exceed 3000 words and 25 references. A reasonable number of tables and illustrations will be accepted.

4. Short-Reports - These include reports on current topics, modified techniques, new materials, practice management etc. Interesting results from routine clinical work or laboratory investigations may also be accepted.

5. Case Reports- Reports such as of rare diseases or conditions, modifications to accepted treatment procedures, new management methods etc. may be included in this category.

6. Letters to Editors - Subjects unlimited, but may include short critique of published papers in SLDJ.

7. Miscellaneous Topics- Subjects unlimited and the format is free. These may also include details of scientific meetings, conferences, annual sessions, examinations, news and views, visits, and obituaries.

8. Proceedings of Annual Sessions- Abstracts from annual sessions of SLDA and other colleges will be published under this category.

The following instructions are mainly applicable to research papers. However, other articles should also conform as far as possible to these instructions.

Submission of Manuscripts

1. General- Manuscripts must be submitted in triplicates. Text must be typed double - spaced with wide margins throughout in A4 (212 X 297 mm) size papers. They should be carefully scrutinized for errors before they are submitted. Correctness of spelling, grammar, and typing is the responsibility of the author. Three sets of figures and tables must be submitted. The number and the size of the illustrations must be consistent with the minimum requirement for clarification of the text. Previously published figures cannot be accepted. Manuscripts should be accompanied by a letter stating that the contents have not been published or submitted elsewhere for publication. Where applicable a copy of the ethical clearance certificate should be attached.

2. Title page- Following information should be furnished in the title page.

Title of paper, names of authors in the order in which they are to appear in the published article, departmental and institutional affiliation and an address for correspondence. Five English key words must be supplied for subject indexing. These key words should be taken from Index Medicus or composed on the same principle

3. Summary - The brief summary is limited to 250 words. It should convey the main points of the paper and outline the results and conclusions.

4. Introduction - The introduction should carry sufficient background information on the subjects of study.

5. Materials and Methods - These should be described and referenced in sufficient detail.

6. Results- This section should present the findings of the research supported by statistical or illustrative validation of assertions. It should be free from discussion.

7. Discussion- The discussion should be focussed on experimental findings and their interpretation. Unsubstantiated speculations and plans for future study are unacceptable.

8. Legends for figures- Must be concise and should provide a brief, self sufficient explanation of the illustration. Sentences such as "see text for details" are unacceptable. Magnification should be indicated at the end of the legend if a calibration bar is not included in the figure.

9. References- References should be cited in the text as follows:

One author- (Jones 1992)

Two authors - (Jones and Arnett 1986)

Three or more - (Jones et al, 1972)

Number references in the order in which they are first cited in the text.

Some common examples for the style of references are given below.

Bartlett J.G. O'Keefe P (1979) The bacteriology of perimandibular space infections. *J.Oral Surg* 37: 407-409.

Bjork A (1969) Prediction of mandibular growth pattern. *A.M.J. Orthod* 55: 585 - 599

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Reference:

1. Data on life, Ciba-Geigy Limited, Basle, Switzerland.



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