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VOLUME 14

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SRI LANKA DENTAL JOURNAL

The Journal of the
Sri Lanka Dental
Association



S. L. D. A.
O. P. A.
275/5, Bauddhaloka Mawatha,
Colombo 7.

VOLUME 14 1983/1984

SRI LANKA DENTAL JOURNAL

EDITOR

DR. M. T. M. JIFFRY
BDS (Cey), M.Med.Sc. (Sri Lanka)
M.Sc. (Bristol), M.I. (Biol)

Published Annually for the Sri Lanka
Dental Association. All opinions and
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THE NEED FOR CONTINUING DENTAL EDUCATION

It is time that all concerned in Dental Education take stock of the present status and orient our Dental Education according to the current trends and demand. In this regard of course, the University Dental School should play a leading role not only in the undergraduate level of professional education, also in the post-graduate level too.

At present the practicing Dental Surgeon is actively looking forward to widen the academic knowledge and improve the professional skills. It is a tragedy to note that there is no proper organised scheme for continuing Dental Education. Having identified this lacunae in Dental Education the Sri Lanka Dental Association this year has launched its first annual scientific sessions with a view to continue it more meaningfully in the years to come. This forum would of course give an excellent opportunity to the ordinary Dental Surgeon to get acquainted with current trends in Dentistry, as well as to meet the experienced senior professional colleagues to discuss and exchange views of academic interest. This kind of an annual session would be ideal for a research minded Dental Surgeon to present his findings and also for the outstation Dental Surgeons to get exposed to various ideas during a week-end.

Besides this, the Sri Lanka Dental Association have been traditionally involved in various other activities to promote the academic standards amongst its fellow members. They are, the publication of its annual journal, getting down Dental Scientists from U.K. under a British Council Grant, maintaining a Library with the assistance of the Commonwealth Foundation, organising monthly meetings and seminars by esteemed local Dental Surgeons.

It is unfortunate to note that the benefits of most of these activities are not fully utilised by the fellow members. It is disheartening to note that a few regular members only take part in these activities. Therefore, it is the responsibility as well as a right of each individual Dental Surgeon to demand such academic activities from the Sri Lanka Dental Association and to participate actively. Likewise it is also the bounden duty of senior professional colleagues who hold good offices in the academic bodies to promote such activities.

PRESIDENTIAL ADDRESS

DENTAL HEALTH AND INSURANCE SCHEMES

Dr. RANJAN ABEYASINGHE

L.D.S (Cey), L.D.S.R.C.S. (Eng), M.C.G.D.P. (Sri Lanka)

PRESIDENT, SRI LANKA DENTAL ASSOCIATION

The Theme of my Presidential Address is "Dental Health and Insurance Schemes". I would like to begin my Address by first quoting from a survey done last year which says that "only 16% of the population in Sri Lanka received, minimal dental treatment", and secondly the statement which is used very often by Health Administrators "Health and Oral Health for all by the year 2000". This slogan is adopted by the World Dental Congress of the F.D.I. and by us in Sri Lanka too.

How can I find a reasonable solution to bridge this gap between these two statements in Sri Lanka ?

Let us look at the provision of Dental treatment by the Government clinics in 1980.

Emergency Restorations	...	...	53,842
Proper Restorations	...	...	56,385
Emergency surgical treatment - Extractions	...	...	674,820
Periodontal treatment	...	...	39,532

These figures show that treatment by	Extraction is	75%
	Restorations	6%
	Periodontal treatment	5%

Perhaps a similar pattern also prevail in General Dental Practice.

These treatment procedures seem contradictory to the accepted norms in developed countries. We are in the habit of using the phrase sophisticated dentistry. I like to use the phrase correct Dental Treatment, which means that a complete course of treatment is made available to rehabilitate the oro-masticarory complex to its ideal function.

Sri Lanka is referred to as a developing country, and sometimes the Dental Profession has used phrases like "Dentistry in Developing Countries", which when interpreted means that the treatment procedures adopted are within the framework of the Economic Philosophy of a Developing Country.

The Dental Profession should give serious thought in making available to the general public the accepted tried and tested treatment procedures. The Dental Profession, the State, and the public should find ways and means to deliver Dental Procedures and treatment practiced in Developed countries, to rehabilitate the Dental Health of the people

living in Developing countries. I had the privilege of attending the World Dental Congress of the F.D.I. held in Japan in November 1983 where the main theme was conducted under the slogan "The Contribution of Dentistry to a long, happy and Healthy life. This was discussed under the following headings; "The longevity of the Human Dentition", The "Preventive Measures for Preserving the Longevity of the Dentition", "Goals for oral Health by the year 2000", Lastly "Recent Developments in the Delivery of Dental Care which contribute to the Longevity of the Dentition".

Based on these statements,

How could we provide the correct dental treatment procedures to the public within the framework of a developing economy. Here we come directly against the barriers - the cost problem. The developed countries have overcome this impasse by implementing Dental Health Insurance Schemes for the Nation.

Let me place before you a brief historical survey and also of the Development and organisation of the Insurance systems in developed countries which cover the Health and Dental Health of the people and has helped in the provision of correct Dentistry.

Modern governmental medical care plans may be said to have originated from 1883 when a Government Act was passed in Germany as a part of Bismarks massive social reform legislation. For the first time a contributory governmental health insurance for industrial and other workers was introduced. Twenty eight years later the British National Insurance Act of 1911 came into force, providing "insurance against loss of health and for the prevention and care of sickness", for most workers. In Denmark, Health Insurance was provided mainly by voluntary organisations called "Danish Sick Clubs" which had been formed in 1857. In the U.S.S.R. the labour code of 1922 introduced a comprehensive social Insurance Program for employees which included medical aid. New Zealand with the Social Security Act of 1938, inaugurated a system of State supported hospital and medical benefits for the whole population.

A comprehensive new system of Social Insurance in Great Britain came into operation on July 5th 1948. as a result of the report of Lord Beveridge. It greatly expanded and integrated the various Social Insurance Programs that had been adopted during the preceding forty years. The cost was to be shared by insured persons, employees and the State. In general every person in Great Britain over school-leaving age and under pensionable age became insured as a member of one of the following classes :

1. Employed persons
2. Self-employed persons
3. Un-employed persons

Various Health Services without direct payment were made available to the whole population under the National Health Service Act of 1946. This included -

1. Hospital and Specialist services
2. Certain domicillary services provided by the local health authorities, and
3. General Medical, Dental and Ophthalmic services.

Everyone became entitled to free medical services and had the choice of a Medical Practitioner from whom treatment could be obtained. Dental treatment was available from Dental surgeons participating in the service. General responsibility for the National Health Service was vested in the Minister of Health.

PERSONS COVERED BY PROGRAMS

Public medical care programs vary greatly in proportion to the total population covered, and differ in relation to National Economic Development.

The National Health services in the United Kingdom, New Zealand and the U.S.S.R. in principle make all facilities available to all residents. Virtually universal coverage is also achieved in Japan, Sweden and Norway based on social insurance participation of all residents. Board coverage also exists in Australia, Denmark and Switzerland where insurance is open to practically all residents, but participation is in part voluntary. In most countries with Medical and Dental Care Programs tied to the Social Insurance System, coverage is based on employment and therefore is in general limited to persons who are gainfully employed.

Australia, Belgium, France, West Germany, Italy and the Netherlands all have comprehensive Social Insurance Systems including Medical and Dental Health Insurance Schemes covering all employees and self-employed persons, and even some of the un-employed. In several countries only persons working for someone else are covered, thus all self-employed as well as un-employed persons are excluded. In other countries only employees in Industry and Commerce are covered or as in India only employees in the larger factories. Such programs exclude the entire agricultural population which in a developing country may be 80 to 90% of the total population. In most developed countries, dependents are included in the Medical and Dental Care Health Insurance Programs.

FINANCING OF PROGRAMS

Medical and Dental Care Programs that are part of a Government Social Insurance system are financed along with other parts of the system in whole or in considerable part by regular contributions paid by employees and employers or both. An additional contribution or subsidy may be provided by the Government. Some Programs provide for a limited cost-sharing arrangement, patients bearing part of the cost of at least some services.

PAYMENT FOR SERVICES

There are three main types of methods of payment called -

1. Service benefit,
2. Reimbursement,
3. Direct provision method

SERVICE BENEFIT

In the service benefit method the Health Care System pays the providers of services i. e. the Medical Practitioners, Dental Surgeons, and Hospitals directly for services rendered to eligible recipients in accordance with contracts entered into between the administrative agency and the providers. The patient usually has no financial dealings with the provider.

Depending upon the nature of the contract, payments to providers may take the form of a specified fee for each service rendered or per capital payment for assuming responsibility for providing services to a given group of persons or in some circumstances a full time or part time salary. The service-benefit method is used extensively in the Health Care Programs of Denmark, West Germany, Japan, Switzerland and the United Kingdom.

REIMBURSEMENT

Under the reimbursement method the patient covered by the health program pays the Medical Practitioner, the Dental surgeon i.e. the provider of services directly and submits his bill to an administrative agency which reimburses him in cash. The refund in some countries covers the entire cost of the bill, in others only a specified percentage.

DIRECT PROVISION

In some countries the Medical Care Programs own and maintain their own medical and dental facilities through hospitals and clinics usually operated by a salaried staff. The facilities provide services directly to eligible persons who pay no fee other than their regular social Insurance contributions.

ADMINISTRATIVE ORGANISATION

Where as in certain countries the direct contracts of the Health Care Program Medical and Dental with insured persons and with providers of services are handled almost exclusively by departments of national or local Governments. Among these countries are the United Kingdom, New Zealand and Canada. In others contracts are handled almost entirely by semi-autonomous National Social Insurance Institutions.

In Australia and Japan, non-governmental insurance institutions of various types serve as administrative agents of the Government.

Health Insurance has two categories. One is organised and administered by a private agency with provisions specified in a contract which is voluntary and Compulsory Health Insurance where it is financed by taxes levied by Government and the provisions specified by Statute.

Sometimes Health Insurance is financed on a group insurance basis, but most plans also provide for individual policies. A feature in group Insurance is that it provides greater protection to more people at less cost than individual policies.

A review of Health Insurance Programs throughout the world shows that each country has developed a system adapted to its own political, socio-economic and cultural conditions. These programmes are amended and renewed to keep abreast of the changing conditions and demands.

In Sri Lanka the following Welfare and Security benefit and Health Schemes are in existence :

1. The Employees Provident Fund
2. Worker's Compensation

3. Maternity benefits
4. Part Medical care
5. Relief for the poor, orphans and disabled.

At present a form of Health Insurance (Medical and Dental) for the benefit of the employees is operated by some of the State and Mercantile sector institutions. These schemes are worked out on a basis of premia contributed by the employees and a similar contribution made by the employer. Some of these State institutions are the Insurance Corporation, Petroleum Corporation, the Central Bank, Bank of Ceylon and Peoples Bank.

There are two categories of schemes, one which covers the employer only while the other includes the employee and the family, members. It is to be desired that ways and means should be explored, so that these existing Health Insurance schemes which only cover employees in specific Institutions should be expanded and transformed to cover each and every individual on a National basis. In the present context in Sri Lanka organising and creating a Medical and Dental Insurance Health Scheme where every citizen contributes a premium, which in turn will inculcate a sense of social responsibility among the people is worthy of careful consideration. It is my belief that the Health and Dental Health Insurance scheme, in a way will definitely give the necessary organisation and financial backing, so that every one will be able to receive the accepted ideal Dental Treatment in the near future. This will enable all of us who are concerned with the Dental Health of the Nation to achieve the goals of "Health and Oral Health for all by the year 2000",

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A PERSPECTIVE ON THE CARIES PROBLEM

E. P. Fernando BDS (Cey.), DPHD (Univ. of Sydney)

It may be true to say that two basic assumptions underlie the thinking on dental caries :- (a) That dental caries is synonymous with cavitation of teeth, and (b) That filling of teeth, is a method of treating caries. These concepts have been tacitly accepted for so long that their reappraisal may be worthwhile.

In respect of the first, - current information on the caries process identifies the earliest clinically recognizable lesion as that of a sub-surface decalcification of the enamel, with no breach of the enamel surface, and therefore there is no question of cavitation at this stage. Most authorities will concede this point, but prefer to opt for the more clinically useful definition of caries in terms of cavitation. Thus for instance Professor Darling states as follows :- "The definition of caries, according to its clinical features, aims to differentiate it from all other diseases with which it might be confused. By using cavitation as the criterion of caries, differential diagnosis is limited to attrition and abrasion, which may produce cavities While it is well known that cavitation in the crown is preceded by a white or stained spot of opacity in the enamel, at present, it is impossible to distinguish such spots macroscopically from opaque spots of hypocalcification of developmental origin. Therefore, it is not possible to use this stage for definitive purposes." (1)

The breakdown of tissue and consequent cavitation may justifiably be regarded as a terminal stage of the process. It would therefore be permissible to actually consider cavitation as a result of, rather than part of the active caries process. The sequence of events occurring between the initial appearance of the sub-surface lesion and the final appearance of a cavity would then more realistically represent the caries process than would the cavity itself. The point is not merely a semantic one. The implication of this view is obvious namely that identification of caries as synonymous with cavitation could conceivably divert attention from the caries process itself.

The aetiological and related factors pertinent to dental caries, particularly from the point of view of possible lines of treatment, have been summarised by Massler (1969) (2) as follow :

1. Micro-organisms : *Streptococcus mutans* and *Lactobacillus acidophilus*.
2. Diet : chiefly sucrose.
3. Cariogenic plaque.
4. Weak acid.
5. Enamel surface : its nature when a tooth is newly erupted, and later.
6. Enamel and dentine structure : conversion of hydroxyapatite to fluorapatite.
7. Saliva : as cariogenic and non cariogenic.

8. Cumulative nature of the caries attack : commencing early in life.

9. Periods of exacerbation : 4-8, 11-18 and 55-65 yrs.

A brief scan of these factors will show that they are not all concerned with cavitation in the teeth or for that matter exclusively with the teeth as such. They could more usefully be regarded as 'oral' factors. Thus it may have greater validity to define caries as a multifactorial ORAL or STOMATOLOGICAL disease process than as a DENTAL one. Such a definition would permit the recognition of an active caries process even in the absence of cavitation.

That the idea, "cavitation = caries" pervades our thinking is evidenced for example in the DMF index. All three components; D, M and F imply cavitation. Thus diagnosis, epidemiology, and treatment all carry this implication. A child would be scored caries free if he had no cavities in his teeth even though an active caries process be present in his mouth.

Similarly the WHO definition of dental caries would appear to need fundamental revision if one were to adopt the broader 'oral' than the narrower 'dental' view of the caries process. The WHO definition runs as follows: "A localised, post-eruptive, pathological process of external origin involving softening of the hard tooth tissue and proceeding to the formation of a cavity." (3)

In terms of the broader view the process cannot be viewed as one exclusively localised to the teeth. It cannot also be regarded as a post eruptive phenomenon, since the condition of the pre-eruption enamel and dentine (ie. as hydroxy - or flour - apatite) has a bearing on caries susceptibility or resistance after eruption. On account of its multifactorial nature, it cannot also be regarded exclusively as a pathological process, since environmental factors, age, susceptibility, and chemical processes of a non-pathogenic nature are involved. Further, the process need not proceed to cavitation before being recognised as caries, since the "white spot" (sub-surface decalcification) is part of the carious process. Thus although the term "caries" derives from the Greek which literally means "rotten" or "rotting" it would appear that there is a case for amplifying its meaning in clinical usage to refer to the totality of the multifactorial processes, rather than to their terminal result.

In respect of the second basic assumption, namely, that "filling" of teeth is a method of treating dental caries, it would be interesting to consider first some implications of the term "filling". For some reason, perhaps no more than that of habit the term persists in common parlance even in technical usage. The operation involved, we know is not one of drilling a hole in a tooth and filling it up, but concerned with restoring the normal anatomy of the tooth that has lost tissue due to caries or trauma. The term "restoration" would therefore certainly be more appropriate than that of "filling."

Cavity preparation of course requires that all caries products should be removed and precautions taken against extension of the lesion. However, the purpose of these procedures is not that of treatment of the caries per se, but that of ensuring the stability of the restoration. The objective of restoring structure of a tooth is to restore function thereby. In the case of impaired masticatory function, this would essentially mean re-establishment of normal occlusal relationships. Other functions restored may be those of speech, aesthetics and psychological functions. Thus restorative dentistry cannot justifiably be regarded as

primarily a method of dental caries, although eliminating the products of the caries process is part of its procedures. It would seem then, that at the root of the problem is a logical fallacy arising from the faulty basic premise that "cavitation = caries", thus giving the syllogism :—

Cavitation = caries
Treatment of cavitation = filling
Therefore treatment of caries = filling.

Stomatological concept of caries

To reformulate a valid concept regarding dental caries in Stomatological terms, it would therefore be a necessary preliminary, to break away from these two tacit assumptions that have hitherto dominated our thinking.

From the view point of treatment rather than that of pathology, it may be more useful to conceptualise caries other than in terms of its terminal lesion. Thus caries may be visualised as an interplay or "flux" of several factors meeting in the "arena" of the oral cavity, and leading to cavitation of tooth as an end result of their interactions. The objective of treatment may then be stated as that of preventing or aborting the end result of cavitation, by disturbing the "flux" in some way. Restoration of teeth would then essentially imply procedures necessary following failure of preventive or curative treatment of caries.

A knowledge of the factors would suggest the lines along which a strategy could be developed to control caries. Thus theoretically it would be possible to prevent, or control caries by controlling all or some of the factors that have been identified. Control of those factors like plaque, which may be considered "junctional", (since other factors are dependant on them to become effective), would be particularly important, since by controlling them, several other factors could simultaneously be controlled.

The various methods by which the factors listed may be controlled are well known, and are being used with varying degrees of success in both clinical, and public health situations. Basically, though "caries control" involves only a very simple procedure consisting of three fundamental steps :—

1. Elimination of all active carious lesions in the teeth in the whole mouth, in the shortest possible time.
2. Carrying out an oral prophylaxis to remove plaque.
3. Application of topical fluoride.

These procedures can be further supplemented by use of fissuresealants, control of diet, and water fluoridation in public health programmes.

It would not be necessary to evaluate these methods here, since the purpose of this essay is only to develop a conceptual basis to support intended "caries control" programmes. It would therefore be useful to take the discussion to a more fundamental level.

Perspective on disease

In attempting to develop a general perspective on "disease", a useful concept would be to recognise that, basically there are only three ways in which disease may be dealt with, namely, - preventively, curatively, and reconstructively. (ie. rehabilitatively). Some reflection will also show that the sequence, - prevent - cure - reconstruct, is in the "time sequence", also that each succeeding phase implies a failure of the preceding ones. Thus reconstructive measures become necessary only after preventive and curative measures have failed at a preceding point in time. Similarly, the curative situation carries the implication of failure of primary preventive treatment.

A second useful conceptual formulation would be that "disease" considered in the abstract could be viewed from three basic standpoints. Firstly, one may regard it in the familiar clinical situation, where the disease is being confronted primarily as it manifests in the individual patient. Most dental curricula, at the undergraduate level, lead to this perspective of "dental and oral disease".

It is less often realised that the disease could also be viewed from the standpoint of the lesion itself, outside of the individual as it were. In such an event, one is likely to find oneself in a laboratory situation, concerned with such aspects of disease as its histopathology, altered biochemistry and so on, rather than its clinical manifestations.

There is a third standpoint from which one could view this problem, namely from that of the group or community. Here one would not be looking at disease in terms of the lesion per se, nor as it presents in relation to an individual patient, but at how it manifests in a population. In this situation one is likely to be primarily concerned with its epidemiological characteristics; prevalence, incidence and distribution along various parameters, rather than with either its histopathology or clinical features

It will also be evident that the sorts of skills demanded of a worker in each situation will vary. Thus the lesion oriented situation will emphasise laboratory skills and knowledge of microstructure and function. The demand on the clinician on the other hand, would primarily be for diagnostic and patient management skills. The third area would similarly call for quite a different order of skills, to do with ability, to think in probabilistic rather than in casual terms; that is the capability to work with statistical concepts. One might mention in passing that this third area of skills is often absent in the objectives of undergraduate dental curricula.

Strategy

A basic strategy for dealing with disease now suggests itself, namely that of applying preventive, curative and reconstructive measures, in the lesion oriented, patient and community oriented situations. It will be seen of course that each method will not be equally applicable in all three situations. Thus curative and reconstructive treatment could most effectively be carried out in the clinical situation, while here, prevention will largely be restricted to secondary prevention. Similarly, the group situation will not represent the best context in which to attempt the highly individualised and often complex procedures demanded of curative and reconstructive treatment. On the other hand it would represent the best situation in which a primary preventive effort could be made.

The lesion oriented situation is ofcourse mainly a research one. but hereto, one could perhaps visualise the three methods in the areas of research chosen. Thus immunological research would represent preventive treatment, while study into the effects of drugs on organisms would be equivalent to curative treatment. Development of materials suitable for replacement and reconstruction of lost tissue would similarly represent the third area.

Concept of prevention

If we were to ignore the lesion oriented situation as not being very relevant to this discussion, and direct our attention to the other, two interesting features become evident.

Although it is seen that prevention of disease can be carried out both in the clinical and group situations, closer examination will show that the clinical context is not the situation of choice for the purpose. The clinical situation is essentially a DEMAND and SUPPLY one. The patient is ill and so demands treatment, and the doctor complies. The group situation on the other hand is more a NEED and SUPPLY one. Here, the patient "patient" (population) is not necessarily ill, or if at risk from illness, is not very much aware of it. It is the doctor, who is aware of the need for preventive measures to be taken. Thus the doctor would be supplying an actual need of the population: that of protection from illness. In clinical situation on the other hand, the patients demand may not infact always correspond to his actual need. For instance a patient may demand the extraction of a tooth while his actual need would be for measures that would make it unnecessary that he should lose this part of his anatomy.

There is another noteworthy difference that is quite fundamental. In the clinical situation, the direction of flow is from "patient to doctor". The patient being ill and therefore highly motivated will seek out the doctor. The appropriate organisation required to cater to this situation would then be the establishment of a hospital type institution, where all equipment, facilities and personnel could be assembled and made available to the patient seeking treatment.

In the group situation on the other hand, the population is usually poorly motivated to go seeking the doctor, since as a group, it is not ill, nor is there any great consciousness of exposure to risk of illness, except perhaps during an epidemic. Thus here the doctor must go to the patient; the direction of flow is "doctor to patient". The organisation needed here is obviously not a centralised hospital type one, but a highly mobile, flexible one where the initiative is always with the doctor, rather than the patient. It is worth noting however, that here the requirement of mobility and flexibility impose also a constraint of simplicity, since complex equipment used in a hospital cannot always be easily transported to the field. These concepts may be summarised as follows :-

Situation :	Lesion oriented	Patient oriented	Group oriented
Choice of treatment :	Preventive Curative Reconstructive	Curative Reconstructive Secondary-prevention	Primary-prevention

It will be seen from this discussion that attempts to deal with caries in the patient oriented situation (clinical) are unlikely to be very successful, since it would not represent the optimal situation in which primary prevention could effectively be applied.

The options available as regards treatment of caries are really only two, namely, preventive or reconstructive. In the present status of knowledge there is no known practicable method of CURING caries. From the point of view of the patient, we cannot but concede that primary prevention is certainly preferable to reconstruction, whatever practicalities might be. Further, caries being possibly the most prevalent disease afflicting mankind, it is essentially a problem of magnitude, rather than of complexity (from the point of view of treatment) as was seen from the relatively simple measures needed to control it. Thus PRIMARY PREVENTION applied in a GROUP situation would appear to represent the optimal combination of method and context in which to apply the method.

In this essay, we have attempted to argue the position that it is not a lack of knowledge but only a logical fallacy that keeps us trapped in a cul-de-sac of an entrenched habit of thinking overtly or tacitly, that caries is cavitation and that "filling" is the appropriate method of its treatment.

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THUMB-AND FINGER-SUCKING HABITS IN A GROUP OF SRI LANKAN CHILDREN—A PILOT SURVEY

A. MOLLIGODA, B.D.S. (Cey)

K. BAMBARADENIYA, L.D.S (Cey), L.D.S.R.C.S. (Eng.), D P.D.

Division of Prosthetic Dentistry,
Dental School,
University of Peradeniya,
Peradeniya.

Thumb-and finger-sucking habits in children have been studied by several investigators in many parts of the world and it has been realised that this habit has certain adverse effects on the dentition, such as malocclusion. However there is no record of similar investigations done in Sri Lanka. Therefore, the present survey was carried out with the objects of investigating the incidence of thumb-and finger-sucking amongst children during infancy, its aetiological factors and the influence of this habit on the dentition.

A questionnaire was designed for the School Dental Nurses who were instructed to complete the forms in respect of every (age 8-12 yrs) who attended the clinic, following an interview with the parent/guardian and also by clinically examining the children. The questionnaires were distributed to several School Dental Clinics in and around Kandy. The items in the questionnaire were explained to each School Dental Nurse. After one month the questionnaires were collected and the data was analysed.

26.6% of children in this survey were found to be thumb and finger suckers from infancy but 15.6% stopped the habit at the average age of 3.6 ± 3.6 years (mean and S.D) No definite conclusions could be drawn with regards to the aetiological factors investigated in this survey but we found the habit of thumb and finger sucking to be significant factor in anterior protrusion of teeth ($P < 0.001$).

Although thumb-sucking has been recognised as early as in the 14th century as a pernicious habit in children. there are divergent views as to its aetiology, the adverse effects on the dentition and the steps advocated to prevent or cure the habit.

Prachtl (1958) stated that thumb-sucking followed from a natural response in the infant to turn its head towards a stimulus and open its mouth. This reflex was said to intensify with hunger. Masslar and others (1942) believed that there has been a disturbance in the child's emotional life. Peterson (1968) said that there was a 'lack of physical manifestation of love and affection by the mother in feeding and holding the child. These were the basic factors associated with thumb-sucking'. Gale and Ayer (1969) however dismissed such conclusions as anecdotal.

Benjamin (1967) stated that thumb-sucking was a learned habit, essentially unrelated to emotional adjustment of the child. Observations on two groups of children in a private hospital, the control group wearing mittens suggested that there was no significant difference between those groups.

Transman and others (1958) in a study of 4650 infants and children found that thumb-sucking habit markedly decreased in the fourth year (at the age of 4 years)

Sears and Wise (1950) observed that the children who were weaned late exhibited more thumb-sucking behaviour than those weaned early.

Most observers are in agreement that chronic thumb-sucking is an aetiological factor in malocclusion. Damage caused by this habit has been listed by Dan Zadik and others (1977) as follows; Open bite, posterior cross bite, exaggerated over-jet and over-bite, temporomandibular joint problems, diastema, retrusive position of mandible and changes in tongue and lip posture Johnson (1939), Graber (1958) and Haryette & Hanson (1970) are of opinion that thumb-sucking behaviour will precipitate malocclusion only if there is disharmony in other factors that control occlusion.

Peterson (1968) and Klein (1971) suggested the restraining hands, stern admonition and punishment should be avoided. Instead one should find the basic emotional factors responsible for the habit. Curative appliances, if any should be designed to serve as "reminder" and not as 'restrainers'.

Bear (1962) and Gale (1969) however assert that the habit should be discouraged by "firm and positive steps".

In Sri Lanka to the best of the writers belief there are no recorded studies on the thumb-and finger-sucking habits in children particularly with reference to its influence on oral structures; but it has been reported that a high incidence (24%) of thumb-sucking was found in the skeletal II type of jaw pattern among the children attending the Orthodontic clinic at the Dental School, Peradeniya (Bambaradeniya 1975).

In the present survey the parents/guardians of a group of children (age 8-12 yrs) attending school Dental Clinics, were interviewed and the children were clinically examined with the object of investigating :-

- (a) The incidence of thumb-and finger-sucking during infancy.
- (b) Some of the aetiological factors which lead to the habit of thumb and finger sucking.
- (c) The influence of thumb-and finger-sucking during infancy, on the dentition.

It was also hoped that the study would stimulate the School Dental Nurses to realise the many areas in which they too could contribute to research activity.

Material and Methods

A questionnaire was designed for School Dental Nurses who were instructed to complete the forms in respect of every child who attended the clinic but within the age range of 8 to 12 years. The forms were distributed to some of the Dental Clinics in and around Kandy.

The questionnaire was divided into 3 groups, a, b & c. Groups a and b consisted of questions pertaining to the incidence and aetiological factors of thumb-and finger-sucking during infancy and were answered by the School Dental Nurses following an interview with parent/guardian. Group c of the questionnaire referred to the influence of thumb-and finger-sucking on the dentition and the School Dental Nurses answered the questions after clinically examining the children. The particular effect we were interested in investigating was malocclusion. The clinical examination to assess malocclusion was a modified version of a method used in a previous study (Bambaradeniya, 1975).

The items in the questionnaire were explained to each of the School Dental Nurses. Although they were free to start on any day but once started, they were instructed to perfect the forms continuously in respect of every child (8-12 years) who attended the clinic, till the questionnaires allocated to that clinic were over.

A total of completed questionnaires were collected after one month and the data was analysed.

Results

- (a) 76 (26.6%) children out of the sample of 286 gave a history of thumb-and finger-sucking during infancy. Further-more we found that 29 (10.2%) of them sucked the thumb only and the rest sucked one finger or several fingers. Both these groups of children will be referred to as 'thumb and finger suckers', in this study.

It was interesting to note that some of these children stopped the habit after infancy but some continued with the habit (persistent thumb and finger suckers) even at the age of 8 to 12 years.

Data obtained from group 'a' of the questionnaire is presented in table I.

TABLE I: The percentages and sex distribution of thumb and finger suckers.

	Male		Female		Total	
	Number	%	Number	%	Number	%
Incidence of thumb-and finger- sucking	26	9.09	50	17.40	76	26.60
Persistent thumb and finger suckers	14	4.80	18	6.20	32	11.00
Children who stopped the habit after infancy	12	4.20	32	11.20	44	7.70

Results suggest that 58.9% (44 children) of thumb and finger suckers stopped the habit soon after infancy and it was found to be at the average age of 3.66 ± 2.57 years (mean & S.D.).

- (b) Results obtained from questions in group 'b' of the questionnaire is shown in table II.

There was a similar distribution of children in both groups according to the feeding methods and weaning age. The information regarding the rest of the family was the same in both the groups and statistically we found that there was no significant difference.

- (c) The results obtained from the clinical examination is shown in table III. Anterior protrusion of teeth was present in 43.4% of thumb and finger suckers whereas it was found in only 26.0% of nonthumb and finger suckers. This difference was found to be highly significant ($p < 0.001$).

TABLE II: Distribution of some features amongst thumb and finger suckers and non thumb and finger suckers.

Features	Thumb & Finger Suckers		Non Thumb & Finger Suckers	
	Number	%	Number	%
1. Feeding methods				
Breast fed during the first 6 months	56	73.7	159	75.7
Bottle fed during the first 6 months	05	06.6	17	08.1
Breast & bottle fed during the first 6 months	12	15.8	30	14.3
No responses	03	03.0	04	01.9
2. Children whose				
I. Both parents are alive	75	98.6	202	96.9
II. One parent is alive	01	01.4	04	01.9
III. Both parents are dead	0	0	0	0
No responses	0	0	04	2.0
	Mean	S.D.	Mean	S.D.
3. Weaning age (months)	11.6	5.13	12.2	5.70
4. Number of children in family	04.0	1.90	04.0	1.60
5. Position of child in the family	02.7	1.95	03.0	1.60
	(Third child)		(Third child)	

TABLE III: Distribution of subjects showing different types of malocclusion. (Figures denote the number of children).

	Thumb & finger suckers		Non thumb & finger suckers	
	Number	%	Number	%
Protrusion of anterior teeth	33	44.4	55	26.0
Skeletal II base	03	4.0	06	2.9
Other types of malocclusion*	03	4.0	05	2.3

* Spacing, irregularity of teeth, cross bite, edge to edge bite.

Discussion

Although 26.6% of children in this survey were said to be thumb and finger sucker during infancy, 15.6% stopped the habit at the average age of 3.6 ± 2.57 years (mean and SD). Our results are somewhat close to observations made by Dan Zadik and others (1977) who state that most children give up the habit by 4 years.

Petersoc (1958) stated that the children who were not breast fed exhibited more thumb-and finger-sucking than those who were breast fed. Results obtained from this survey suggest that there is no significant difference between thumb and finger and non thumb/finger suckers with regards to their feeding methods. Therefore no definite conclusions could be drawn with regard to the influence of feeding methods on thumb-and finger-sucking.

Moreover circumstances which may influence the emotional state of infants such as both parents being dead or alive number of children in the family and the child's position in the family were also found to be similar in both groups.

Sears and Wise (1950) reported that children who were weaned late exhibited more thumb-sucking behaviour but it was not found to be so in the group of children in this survey. There was no significant difference between the average weaning age of thumb and finger suckers and non thumb and finger suckers. This may be due to the smaller sample used in this survey and also due to the different socio-economic status of the sample.

43% of the thumb and finger suckers had anterior protrusion of teeth compared to 26% of non thumb and finger suckers. This difference was found to be highly significant ($p < 0.001$) and it supports observations made by Dan Zadik and others (1977) who state that thumb-and finger-sucking is an aetiological factor in malocclusion. It has been reported in an earlier survey (Bambaradeniya 1975) that a high percentage (24%) of thumb suckers were found in skeletal II type of jaw pattern and he advanced the possibility that, in that group at least, thumb-and finger-sucking may be the nature's attempt to provide a compensating physical seal to bridge the discrepancy between upper and lower jaw bones. However in this study no such relationship has been found. It may be because the clinical assessment in this study was done by the School Dental Nurses whereas in the previous study it was done under direct supervision at the Dental School itself. The discrepancy in the examination techniques between the studies would have given variable results. Therefore it has been suggested to devise a better technique of assessing the skeletal II type jaw relationship so that it would be used on a larger survey.

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Acknowledgement

We would wish to thank Mrs. I. Gunatnngge, Mrs. S. Kumarage, Mrs. A. Nanayakkara, Miss Seelawathie Menike, Miss A. Gunathillake, Mrs W. Herath, Miss S. Hitehami, Mrs. J. Peters, Mrs. Wijekoon, Mrs. J. Ranasinghe, Miss M. Bogahapitiya, Miss S K. Koiakadeniya of the School Dental Clinics at Trinity College, St. Sylvesters College, Udunuwara Maha Vidyalaya, Vijaya College - Matale, Dental School Peradeniya; respectively, for their keenness and cooperation in this investigation. We have no doubt that they, and many more nurses will volunteer to help us in the future.

A COMPARTIVE ANALYSIS OF MAXILLO-FACIAL FRACTURES IN SRI LANKA DURING THE YEARS 1970 — 1980

N. A. de S. Amaratunga, F.D.S R C.S., (Edin.)
Department of Oral Surgery and Oral Pathology,
Faculty of Medicine, University of Peradeniya,
Peradeniya, SRI LANKA.

Summary :

A retrospective analysis of 569 patients treated at General Hospital, Kandy, Sri Lanka for facial fractures, during the period Jan. 1970 to Dec. 1980, shows a 144% increase in the overall incidence, during the latter half of the decade compared to 79% increase in the first half. Towards the end of the decade road traffic accidents had risen sharply, and also had assault, to some extent as causes of facial fractures. Incidence of mid facial fractures too shows a significant rise. These trends could perhaps be attributed to certain changes that had taken place quite rapidly in this country during this period.

Introduction

The pattern of maxillo-facial fractures, would depend on the socio-economic and cultural activities of a country. When these undergo change, the pattern of facial injuries too could be expected to change. This trend has been observed in a number of European societies; Hoof R R., Van, et al (1977), Lindstron, D., (1960), Lamburg, M.A., (1978), Nakamura, T. et al (173)

Sri Lankan society may have undergone rapid changes during the last few years of the last decade (1970-1980). This study deals with the changes that may have taken place in the pattern of facial injuries, during this period.

Material and Methods

The material for this study consists of 569 patients who were treated for Maxillo-facial injuries at the General Hospital, Kandy during the Period; Jan. 1970 - Dec. 1980. This hospital receives patients mainly from the Central Province of Sri Lanka, and only 18 of the subjects of this study were resident outside the province.

Hospital records and radiographs of these patients were studied to ascertain, the age, sex, site of fracture, and the cause. The type of anaesthesia used and the period of hospitalization required in the treatment were also studied as these were considered a measure of the severity of the injuries.

With regards to the site, the fractures were classified into five categories; (1) Mandibular (2) Zygomatic (3) Le Fort I & II (4) Le Fort III and (5) Multiple. Patients who had fractures falling into more than one of the first four categories, were grouped under the fifth category, multiple.

With regard to the cause, both types of road traffic accident victims, traveller and pedestrian, were grouped under one category.

RESULTS

The most significant finding was the rapid increase in the overall incidence of facial fractures during the latter half of the eleven year period. Yearly admissions of patients are shown in Table I There had been a 79% rise in incidence from 1970 to 1975 whereas from 1975 to 1980 the rise was 144%.

TABLE I

1970 -	24
1971 -	31
1972 -	30
1973 -	36
1974 -	32
1975 -	43
1976 -	41
1977 -	52
1978 -	67
1979 -	82
1980 -	103
	<hr/>
	541

YEARLY ADMISSIONS

Facial fractures were common in the two age groups 21 - 30 and 31 - 40 throughout the period under study, though there had been a minor change during the latter half ; a rise from 33% to 44% in the younger age group 21 - 30 being recorded.

TABLE II

AGE	1970	1980	TOTAL '70-'80
1 - 10	1	3	23
11 - 20	4	6	60
21 - 30	7 (33%)	44 (44%)	201
31 - 40	7 (33%)	30 (30%)	187
41 - 50	4	10	52
51 - 60	1	4	31
61 - 70	0	3	15

DISTRIBUTION BY AGE

Another finding of interest was that more women had received facial injuries towards the end of the decade, male : female ratio changing from 7 : 1 in 1970 to 4 : 1 in 1980.

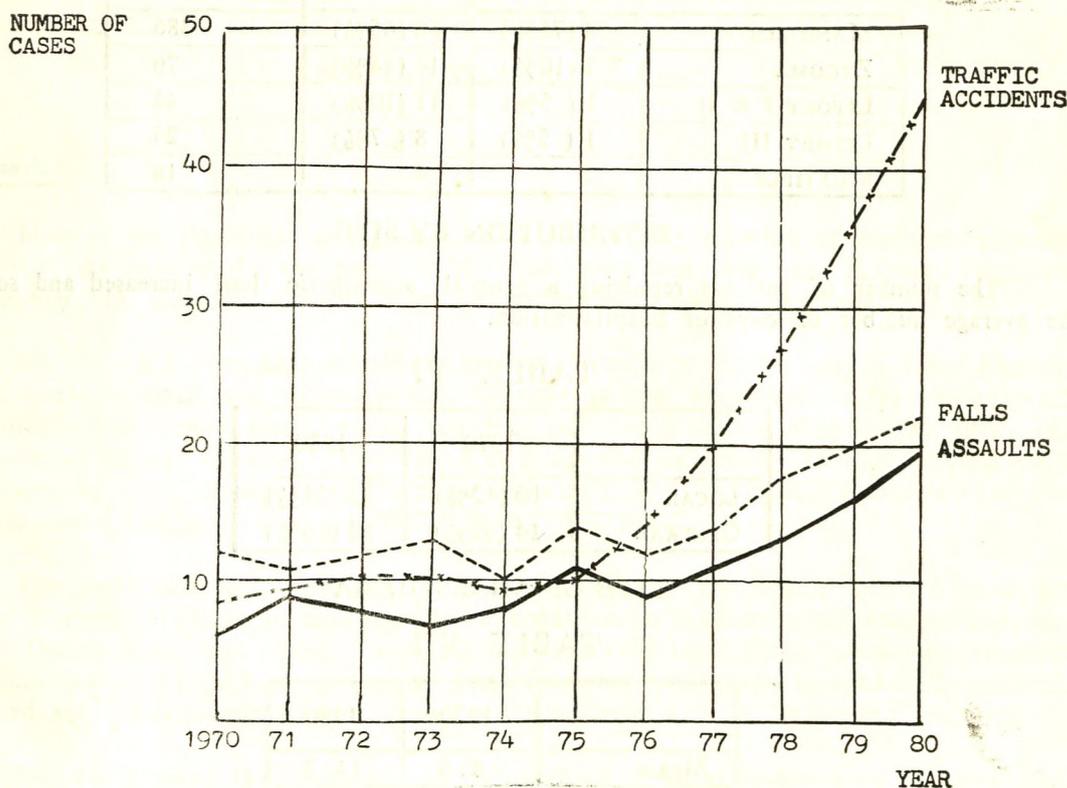
TABLE III

SEX	1970	1980	TOTAL '70-'80
MALE	21	80	423
FEMALE	3	23	146
M:F. RATIO	7:1	4:1	

MALE : FEMALE RATIO

In this country three major causes of facial fractures could be identified ; Fall from a height, Road Traffic Accidents and Assault. In 1970, 50% of fractures were caused by falls, 25% by traffic accidents and 12% by assaults. This picture had completely changed by 1980 and the trend of this change is shown in Fig. 1. Traffic Accidents had become the commonest cause, taking a toll of 45% of patients. Falls had accounted for 26%, and assaults as a cause had increased from 12% to 24%.

FIGURE I



ANALYSIS OF PATTERN OF THREE MAJOR CAUSES

TABLE IV

CAUSE	1970	1980	TOTAL '70-'80
Fall from Hight	12 (50%)	26 (26%)	202
Traffic Accident	6 (25%)	46 (45%)	228
Assault	3 (12%)	23 (24%)	89
Industrial Accident	0	5 (3%)	27
Miscellaneous	3 (12%)	3 (2%)	23

MAJOR CAUSES OF JAW FRACTURES

Mandibular fractures were the commonest throughout the decade. However this had dropped from 75% in 1970 to 65% in 1980 while Zygomatic fractures had increased from 10% to 17%. In fact the mandibular: Mid facial ratio had changed from 4. 5:1, to 2:1.

TABLE V

SITE	1970	1980	TOTAL '70-'80
MANDIBLE	18 (75%)	66 (65%)	386
ZYGOMA	2 (10%)	14 (14%)	76
LEFORT I & II	1 (5%)	11 (10%)	44
LEFORT III	1 (5%)	8 (7%)	25
MULTIPLE	2	4	19

DISTRIBUTION BY SITE

The number of patients repuiring a general anaesthetic had increased and so had the average number of days of hospitalization.

TABLE VI

	1970	1980
LOCAL	10 (42%)	35 (34%)
GENERAL	14 (59%)	68 (66%)

TYPE OF ANAESTHESIA

TABLE VII

	1970	1980
MEAN	8.6	14.3
RANGE	5 - 11	10 - 19

PERIOD OF HOSPITALIZATION

TABLE VII

	1970	1980
Average Number of Days	8	14

PERIOD OF HOSPITALIZATION

TABLE VIII

GROUP	1970	1980	TOTAL '70-'80
Professional/Academic	3	7	40
Teacher/Clerical/Technician	6 (25%)	45 (45%)	224
Peasant/Labour	13 (60%)	48 (48%)	289
Student	2	3	16

SOCIO-ECONOMIC GROUPS

Discussion

Most of the significant changes had taken place during a period of heightened economic activity in the country. In the years 1978 - 1980 there had been an increased industrial development, an increased mobility with an increased circulation of money.

The remarkable increase in the incidence of traffic accidents causing facial fractures, could clearly be attributed to the sudden increase in the volume of traffic on the roads. The number of registered motor vehicles had increased by 67% during 1978 - 1980 (Registrar of Motor Vehicles). This trend and the rise in assaults have been observed in other societies going through similar changes (Lamburg 1978). Industrial accidents which were hitherto absent had made an appearance during this time.

This study also reveals the existence of a significant relationship between cause and site of fracture. Findings in this regard are consistent with those of other studies (Lamburg 1978) One hundred and fifty three of the 162 falls had caused mandibular fractures. Sixty one out of 74 Le Fort type mid facial fractures were caused by road traffic accidents. Hundred and fifteen assaults had caused 80 mandibular and 29 Zygomatic fractures.

This could mean that, with regard to aetiology of facial fractures in Sri Lanka, falls usually cause mandibular fractures, Le Fort type mid facial fractures are caused commonly by traffic accidents and assaults usually cause mandibular and zygomatic fractures.

The number of patients requiring a general anaesthetic had increased and also the number of days of hospitalization. This could mean that the severity of these injuries had caused by traffic accidents would probably be more severe than those caused by falls and assaults.

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FORENSIC DENTISTRY

ROSS J. BASTIAAN

M. D. Sc., L. D. S., M. Sc., F. R. A. C. D. S.

Since the nineteenth century, dental findings have been employed by law enforcement agencies to assist in the conviction of criminals.

Over recent years, Forensic Dentistry (Odontology) has developed into a sophisticated science and one which is closely interrelated with Forensic Science as a whole.

Forensic Dentistry is chiefly used in :

- (1) Homicide investigation.
- (2) Mass disaster victim identification.
- (3) Civil litigation.

All dentists have a role to play in Forensic Dentistry and should be prepared to assist police officers if requested to provide dental records or radiographs. In remote areas they may be asked to complete dental charts on a deceased person and in a mass disaster form a team to identify the victims. Generally, a specialist Forensic Odontologist should be permanently associated with the state police force and the Forensic Pathologists.

Forensic Dental Identification

The examination of the body is usually performed at the morgue, but occasionally on site.

The condition of a body varies from :

- (1) Normal
- (2) Incinerated
- (3) Completely decomposed (skeleton)
- (4) Partially decomposed
- (5) Mutilated
- (6) Combination of above

Dental identification is called for when other means, such as visual, fingerprints or jewellery identification are inconclusive.

The dental identification process should include :

- (1) Dental Charting
 - (a) Missing teeth
 - (b) Restorations - surfaces of teeth involved, materials.
 - (c) Prostheses - type and number of teeth, clasps, denture outline.
 - (d) Periodontal condition.

- (e) Attrition, abrasion, erosion.
- (f) Caries
- (g) Distinguishing features - diastemata, impacted teeth, etc.
- (2) Radiographs - Bite Wings and at least periapical views of anterior maxillary teeth.
- (3) Photographs - occlusal views and distinguishing features wherever possible.
- (4) Impressions - maxillary and mandibular teeth.

This data should be carefully recorded and stored for comparison later with ante-mortem records.

In the normal body, mouth access is not difficult. However, in incinerated and decomposing bodies, resection of the jaws is usually necessary (Fig. 1).

The mutilated body presents additional problems in identification. Often fragments of facial and dental structures are missing and these must be located at the site. The police can assist by a careful search and by sieving the soil in the area. Since some tissue may not be recovered, care must be exercised in assessing whether teeth were lost ante-or post-mortem. Sockets of teeth lost post-mortem will exhibit sharp socket edges and completely empty sockets. A socket lacking sharp margins and partially filled with bone, denotes a tooth lost ante-mortem.

Positive dental identification can only be made if ante- and post-mortem dental information match. It is, therefore, essential that all members of the dental profession attempt to accurately record the work they perform and chart missing teeth. Prosthesis can have patient's name included either on an identification strip incorporated in the denture or engraved on the fitting surface of the denture.

To establish "Positive identification beyond reasonable doubt" the following details match or be accountable for on the ante-and post mortem dental records:

- (1) Missing teeth
- (3) Type and position of restorations.
- (3) Endodontally treated teeth.

Partial prosthesis can provide information as to the teeth missing and palatal contour. Prosthesis are rarely a means of positive identification, as individual markings are infrequent.

Disaster Victim Identification (D. V. I.)

Occasionally, many deaths may occur because of a natural or man-made disaster. The resultant large number of often unidentified victims presents a major problem. Experiences in other countries have shown that approximately 60% of victims are identifiable by their teeth, (1, 3).

In Sri Lanka, a team of approximately 24 dentists should be formed to work with a State Disaster Team. Three teams consisting of eight dentists each, need to be organized. Because of the stressful nature of the work and the need for accurate recording, each team should be rostered to work in four-hourly shifts. The team should consist of leader, two dental examiners, two dental recorders, two radiographers and one developing radiographs in a portable x-ray developer. The equipment needed to assist the team is indicated in Table I.

Two bodies can be worked on at the one time using this team approach. The two examiners should cross over bodies after each examination and repeat the procedure, thus minimizing inaccuracies in charting. Radiographs should be developed immediately to check for inconsistencies in post-mortem charts. The leader should co-ordinate the team and check inconsistencies in charting.

It is imperative that the disaster area is carefully isolated and searched thoroughly for all means of identification. Such searches are best performed by the police in the presence of a dentist. The police must also obtain either locally or internationally, the dental records of suspected victims, from general dental surgeons.

In mass disasters, identification is often achieved, using either visual identification fingerprints, jewellery or dental charts. It is essential, however, that the dental profession establish a D. V. I. dental team well before any disaster occurs.

Forensic Dentistry in Sri Lanka

Presently, there is no co-ordinated dental forensic team in Sri Lanka. Establishment of a team should be co-ordinated through the Forensic Medicine Department at Colombo University. Volunteer dental practitioners could meet and form teams to work in the event of a national disaster.

One or two members of this team should familiarize themselves with recent textbooks on Forensic Dentistry (1) and make themselves available to the local police authorities if dental identification is ever required.

Unlike many Western countries, such as the United States of America, United Kingdom, Japan and Australia, where extensive dental work is performed, many Sri Lankans have only very basic non-restorative dental treatment carried out.

Although many citizens do not even have dental records, the dental forensic specialist can often estimate the age of the victim (eruption of teeth, wear cementum pattern), their habits, (betel nut chewing, smoking) and sometimes the sex (anatomical features of the skull).

Conclusion

Forensic dentistry has become a valuable addition to identification of many deceased persons. Its usefulness is especially apparent in the event of mass disasters.

Sri Lanka has an urgent need to establish a reliable, dedicated team of skilled dentists to work together in this field.

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TABLE I

Equipment Requirements for a Dental D. V. I. Team :—

1. Strong lightweight carrying case,
500 x 250 x 230 mm.
2. Contents.
 - (a) Mouth mirrors - 10 No. 5. metal
 - (b) Probes - 4 single ended sickle No. 23
 - (c) Fergusson Mouth gag - 1
 - (d) Scalpel Handles - 2 Barp Parker
 - (e) Scalpel Blades - 10 No. 29 disposable
 - (f) Forceps - 2 Spencer Wells
 - (g) Scissors - 1, 6 cm. pair straight sharp - pointed.
- 1, 6 cm. pair curved sharp - pointed.
 - (h) Torch - 1 pencil type
- flashlight type
 - (i) Toothbrushes - 6 for dirty necroscopy.
 - (j) Disclosing solution - 1 jar to help distinguish
composite, silicate restorations.
 - (k) Rubber gloves - range of sizes.
 - (l) Cotton wool rolls
 - (m) Gauze squares - 8 x mm x mm. (100)
 - (n) Autopsy saw - e. g. Stryker to separate angle of mandible
 - (o) DF58 Kodak X-ray Film 2 boxes.
 - (p) Bite wing holders - disposable (100)
 - (q) Impression trays - select a range of sizes
 - (r) Impression Material and Mixing Implements
 - (s) Stationery Items - ballpoint pens, clipboard,
- stick on labels, plastic bags
 - (t) Tongue depressors, wooden (20)
 - (u) Disaster Victim Identification Forms (International Criminal Police Organization
- Interpol)
 - (v) Deodorant and impregnated gauze masks.

3. Morgue Equipment

- (a) Mobile Dental Radiographic Equipment
- (b) Portable X-ray developer
- (c) Protective Clothing
 - overalls
 - rubber knee-length boots
 - heavy duty rubber gloves
- (e) Dental lights
 - fixed overhead or mobile.

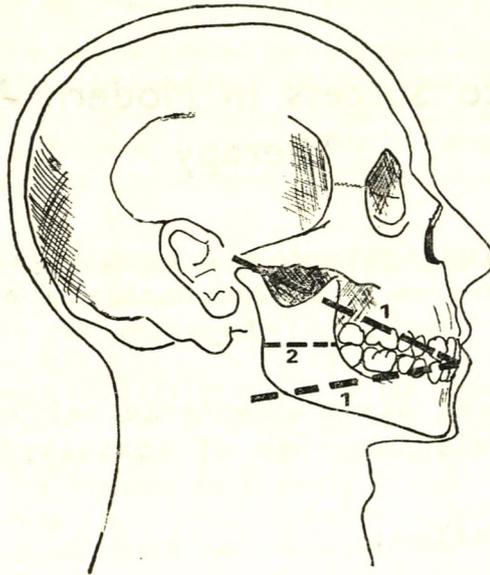


FIGURE I. Technique to gain access to the mouth of incinerated victims.

- (a) Two incisions (1) from corner of mouth to tragus of ear and angle of mandible and raise a triangular flap to expose ramus.
- (b) Cut ramus with saw or bone cutters above the mandibular occlusal plane. (2)
- (b) Dissect out or hinge mandible to gain access to both dentitions.

BINOTAL

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The Key to Success in Modern Antibiotic Therapy

Effective against all gram negative
and gram positive bacteria of
Practical Importance

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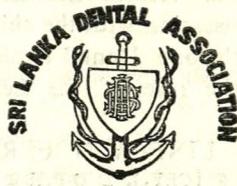
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SCIENTIFIC SESSIONS

17th June 1984

ABSTRACTS

SOME EXPERIENCES IN TEACHING DENTAL HEALTH EDUCATION AT THE SCHOOL FOR DENTAL THERAPISTS MAHARAGAMA - 1975 to 1984

One of the many techniques utilised by the school Dental therapist to maintain good oral health in the community is via Dental Health Education. Although she is allowed by law to treat children between 2½ to 13 years in Sri Lanka, she is allowed to impart Dental Health Education to all members of the community and thus place an important and vital supportive role in helping the Dental Surgeon to maintain and improve oral health in the community.

The Trainee School Dental Therapist has been taught during the last few years how to use various visual aids such as posters, flash cards and models etc. Attempts were made during the past few years to encourage and teach therapists to teach at pre-grade level tooth brush drill using the class teachers in a supportive role, to teach in the class room, to train Dental Health leaders in the school. At the clinic how to impart dental Health Education at chair side, to educate the parent and the child at a special table located in the clinic. She also is taught how to work side by side with Family Health Worker to impart the dental health message. She is taught how to play a supportive role to the Dental Surgeon in imparting dental health education in schools. Student Therapist now even learn to use media such as the radio to impart dental health education under the guidance of the Dental Surgeon.

Dr. S. L. PERERA

A CHILD - TO - CHILD DENTAL HEALTH EDUCATION PROGRAMME

A new Concept in Dental Health Education, Namely Child - to - child Education is receiving attention of Public Health Dentists the World over.

Such a programme has been going on at Vidyakara Maha Vidyalaya, Maharagama, since mid 1982. Here child - to - Child Education is being carried out in two levels. At one level a band of about 25 students selected from grade nine, ten and eleven, referred to as Dental Health Leaders are responsible for the overall management of the programme under the guidance and with the assistance of the members of the staff. These Dental Health Leaders have specified responsibilities as regards the Oral Health of the entire school population, and these responsibilities could be categorised under three areas, viz., Educative, Preventive and Curative.

At the lower level, under the supervision of the dental Health Leaders, about 125 children in grade one classes have a weekly tooth brushing session with the children divided into groups of about eight or ten, standing in a circle with one Dental Health Leader for each circle. In each circle of children, one child assumes the role of the Leader and the others follow her.

Dr LINFRY N FERNANDO
B.D.S. (CEY.), D D.P.H.R C S (ENG.)

A STUDY OF THE GENERAL DENTAL PRACTICE PATTERNS IN SRI LANKA

By means of a survey of General dental practitioners information was sought by aid of an questionnaire. Data was gathered on the geographic location of practices, types of practice, type of work invalved, the scope for private dental laboratories, the prospects for training of dental surgery assistants and the average income group of the patients attending general dental practices. This information would perhaps be useful to the college of General Dental Practitioners in their increased activity in the field of continuing education and the development of dental practices in relation to treatment demands, and for the planners of dental health policy in this country.

H. W. M. COORAY B D.S.,
ASOKA RATNAYAKE
B D S., F.D.S.R.C.S. (ENG)
F.D.S R.C.S. (IRL)

ERYTHEMA MULTIFORME - REVIEW OF 16 CASES

Erythema Multiforme is a recurrent acute inflammatory disease that may affect the oral mucosa alone or in conjunction with the skin and other mucous membranes.

Sixteen successive patients with the disorder who were managed on an indoor basis at Kandy General Hospital during 1971-81 are reviewed.

In the more severe types the patients were acutely ill with profound constitutional disturbances. The sites involved ranged from the skin and oral mucous membrane to eyes and genitalia.

The common Intra-oral sites were the lips, cheeks, tongue and palate. Typically, the oral lesion's are said to go through five phases - macular, bullous, sloughing, pseudomembranous and healing.

Diagnosis hinged heavily on the history and the clinical picture, special investigations not being of much avail.

An important consideration governing the management of these patients was the extent and severity of involvement. Systemic steroids had to be resorted to in about 70% of patents. Topical steroid preparations were also used to advantage. Systemic broad spectrum antibiotic therapy helped to control secondary infection. In the acutely ill patients suitable supportive therapy had to be instituted in addition.

Dr. SUNIL FERNANDO F.D.S., R.C.S.
Consultant Dental Surgeon, Colombo South General Hospital

HISTOLOGICAL CHANGES IN HAMSTER CHEEK POUCH MUCOSA TREATED WITH BETEL QUID INGREDIENTS — PRELIMINARY REPORT

This pilot study was designed to establish an animal experimental model to test the carcinogenicity of the ingredients of the betel quid. 78 inbred Syrian hamsters of 3 to 4 weeks old, both males and females, were used in the study group and 30 hamsters in the control group. A mixture of commercially obtained tobacco and lime were used as the carcinogen. The carcinogen was ground to a thick paste and was placed into both cheek pouches of the hamsters in the study group. Cheek pouches were dissected at intervals, fixed in 10% formalin and stained with hematoxylin and eosin.

The cheek pouches treated for six months and onward showed hyperorthokeratosis and occasional ulcerations. The group of hamsters painted for the whole one year period showed parakeratosis, acanthosis, spongiosis and dysplastic (pre-malignant) changes such as basal hyperplasia, pleomorphism and hyperchromatism. No frank malignancies however were observed in the cheek pouches.

J. Ramanathan

EFFECTS OF EXPERIMENTAL IRON DEFICIENCY ANAEMIA ON THE INTERMEDIARY METABOLISM OF THE EPITHELIUM OF HAMSTER CHEEK POUCH

The main constituents of the aerobic pathway in mammalian cells are iron containing enzymes and haem compounds. As this is the predominant pathway yielding high energy phosphate compounds, a depletion iron containing compounds in iron deficiency anaemia may affect energy production. Therefore, it was decided to assess the aerobic pathway by measuring respiration, i. e. oxygen consumption, of oral epithelium and cytochrome concentrations of mitochondria isolated from cheek pouch epithelium.

In this study hamsters were selected as the animal model. Iron deficiency was induced by feeding the animals a low iron diet coupled with retro-orbital bleeding. Anaemia was established at the end of 9 weeks, at which time animals were killed and cheek pouch epithelium was used for all investigations.

Oxygen consumption of the cheek pouch epithelium was measured using a Clark type oxygen electrode. Fifteen experimental and 12 control animals were used. Firstly the epithelium was separated from its connective tissue using EDTA and with a 4 mm biopsy punch epithelial discs were cut. For each assay in total of 15 discs from each animal was pooled. The mean oxygen consumption of the iron deficient group was 12.6 ± 1.1 s.d. nmol/15 (4mm) discs whereas the value for the control group was 27.5 ± 1.7 s.d. nmol/15 (4mm) discs. The reduction of oxygen consumption of the tissues from iron deficient animals was highly significant ($P < 0.002$).

Cytochromes were measured using difference spectra in mitochondria isolated from cheek pouch epithelium. Twenty five experimental and 20 control animals were used and mitochondria was prepared according to the method of McCoy (1977). Concentrations of cytochromes a_3a , b and c were significantly reduced in mitochondria isolated from cheek pouch epithelial cells from iron deficient group.

A reduction of oxygen consumption and cytochromes clearly indicates an impairment of aerobic pathway of energy metabolism in iron deficient animals. Such a metabolic defect would impair most of the energy requiring processes in oral epithelium including cell proliferation.

A. W. RANASINGHE, BDS & M. Med. Sc (Cey)
Ph.D (Lond),
Department of Oral Medicine, Dental Hospital,
Peradeniya.

REFERENCE

McCoy, D. G. (1977) Proc. Soc. Exp. Biol. Med., 156, 118-122.

GENERAL DENTAL PRACTITIONERS REQUIREMENTS IN POST GRADUATE COURSES

It was felt necessary to find out the requirements for a post graduate course for the general dental practitioner in view of the post graduate diploma course, and examination that is being designed by the Board of study in Dental Surgery of the post Graduate Institute of Medicine. A survey to this effect was carried out among the general dental practitioners. Although limited in scope this survey can be of use in the planning of this post graduate course. They tend to show how the requirements differ from place to place and on the age group. Requirements would also change with changing patient demand and the pattern of undergraduate dental education.

A. RATNAYKE B.D.S., F.D.S.R.C.S., F.F.S.R.C.S.J.
H. W. M. COORAY B.D.S.

MECHANISM OF BLOOD FLOW TO THE DENTAL PULP

Blood flow to the Dental pulp is an interesting and important event in the maintenance of the vitality of the teeth. Except in the cerebral blood flow, pulpal blood flow is unique in the body for its autoregulation. Dental pulp being enclosed in a constant chamber, cannot expand. In addition being an area of the body with the richest nerve supply, is subjected to sensitivity to the slightest pressure changes. In this paper, the unique autoregulatory role played by the blood vessels in the pulp and its implications on the sensitivity of the nerves will be elucidated.

Dr. M. T. M. JIFFRY.

GOLDEN JUBILEE CELEBRATION OF THE SRI LANKA DENTAL ASSOCIATION

Dr. H. W. M. COORAY*

The first fifty years of the Sri Lanka Dental Association was celebrated from 4th to 8th December 1982 in many ways, with the pomp and ceremony befitting this important historic milestone. Our Association, one of the oldest, probably the 2nd oldest National Professional Association in Sri Lanka was formed on 6th December 1932 by a group of ten Dental Surgeons who realised that an organisation, a generally accepted code of ethics, and some element of common approach to the teaching and the practice of Dentistry was essential to improve the general standard of Dentistry and establish a technically and intellectually respectable profession. The objects of the Association being the promotion of dental and allied sciences, and the maintenance of the honour and the interest of the Dental Profession. A special working committee was appointed by the Council of the Sri Lanka Dental Association to organise the 50th anniversary celebrations.

Chairman — Dr L. S. W. Dassanayake

Vice Chairman/Chairman Finance — Dr W. G. Wimaladharmasiri

Secretary/Chairman Social events — Dr H. W. M. Cooray

Treasurer/Chairperson protocol — Dr Mrs Siromani Abeyaratne

Chairman Scientific programmes — Dr M. D. W. R. Goonatilake

Chairman Education programmes — Dr Rajitha Senaratne

Chairman Publications — Dr M. T. M. Jiffry

Chairman Cultural programmes and Mass Media — Dr Ranjan A. Abeyasinghe

Chairman Public relations — Dr S. A. Silva

Committee Members — Dr M. P. P. de Silva, Dr D. Y. D. Samarawickrema

Dr Neil Gunawardene, Dr S. L. Perera,

Dr Nimal Rajapakse, Dr D. Ravidraraj.

Inauguration

The inauguration of the 50th anniversary celebrations was held at the Sri Lanka Foundation Institute Colombo under their co-sponsorship. The honorable Minister health Dr Ranjith Atapattu inaugurated the celebrations in the traditional manner by the lighting the oil lamp. Dr L. S. W. Dassanayake, President of the Sri Lanka Dental Association in his welcome address outlined the part played by the association in the development of the dental profession over last fifty years. The Minister in his inaugural address said that a professional association always reflects the standards of a profession as a mirror image and as for the dental profession its professional body has maintained its standards and also considerably raised the standards of the profession during the period of 50 years. He also referred to the goal the government has set for itself "Health for all by the year 2000". The national roll call was read out by the honorary Secretary of the Association Dr H. W. M. Cooray. There were participants from 9 Countries namely Australia, Canada, Netherlands, India, Luxemburg, Sweden, Malaysia, Tanzania and United Kingdom. The Commonwealth Foundation sponsored the participation of two delegates namely Dr Martin H. Hobdell representing the British Dental Association and Dr C. H. Luhunga, the President of the Tanzanian Dental Association. Dr M. D. W. R. Goonatilake, vice president of the association proposed the vote of thanks.

* Honorary Secretary, Sri Lanka Dental Association 82/83

Scientific Sessions - The scientific programme committee under the chairmanship of Dr M. D. W. R. Goonatileke had selected 'Dentistry in Developing Countries' as the main theme. The programme consisted of 6 sessions consisting of panel discussions and 22 free papers. Each session was on a specific section pertaining to the main theme, which was relevant to the whole profession, the General Dental Practitioners, Hospital Dentists Academic alike. The leading lectures in each section were delivered by speakers of international repute, who were experts on their subjects. There were speakers from United Kingdom, Netherlands, Malaysia, India, Luxemburg, Tanzania, in addition to our members presenting papers at these sessions. A brochure was published embodying the abstracts of all papers read at the sessions. These sessions provided our membership and our visiting colleagues from other countries an opportunity to cultivate a spirit of good fellowship, and frank free and tolerant discussions of scientific matters brought before the gathering. As the closing session gifts were exchanged between the Sri Lanka Dental Association and Dental Associations represented by the delegates. Certificates were awarded to all participants who presented papers.

The Cultural Programme arranged by Dr A. Ranjan Abeyasinghe, Chairman Cultural Programmes and mass media was the grand finale to the celebrations. The artistic heritage which blossomed in the post independent Cultural resurgence in Sri Lanka, has brought back traditional Arts to the modern stage as demonstrated by the members of the State Dance and Music Ensemble of Sri Lanka. There were several radio programmes in Sinhala, English and Tamil arranged for the benefit of the listening public. An half hour dental health education television programme was produced in Sinhalese.

Dental Health Exhibition was held at the Dental Nurses Training School under the chairmanship of Dr Rajitha Senaratne assisted by Drs S. L. Perera, D. Y. D. Samarawickrema, Nimal Rajapaksa and D. Ravindraraj. This exhibition was declared open by Mrs Hema Premadasa, the wife of the Honorable Prime Minister. The aim of this activity was to educate the Community of the importance of dental health and to promote a dental consciousness among them. There were also final year dental students and student dental nurses who worked hard to make this exhibition a grand success it was.

Dental Trade Exhibition - Expodent 82 was held at the Sri Lanka Foundation Institute under the chairmanship of Dr W. G. Wimaladharmasiri who was also the chairman of the Finance Committee. This exhibition was declared open by the Hon Minister of Trade and Shipping Mr Lalith Athulathmudali. There were exhibitions from Germany, United States and United Kingdom, in addition to the Sri Lankan exhibitors. They displayed the recent advances in the field of dental materials, instruments and equipment available to the dental profession.

A News paper supplement was published on 4th December 1982 under the guidance of chairman publications Dr M. T. M. Jiffry. This supplement which was published in the Ceylon Daily News was sponsored by Lever Brothers (Cey) Ltd and contained many useful articles for the benefit of the public.

Special Issue of the Journal was published under the editorsh'p of **Dr D. Y. D. Samarawickrema**. A series of specially invited articles were published which reviewed the progress made in the particular speciality of Dentistry.

Social Events The 50th anniversary Dinner Dance took place at the Galle Face Hotel. The dance committee under the enthusiastic management of Dr Mano Fernando as its chairman organised an excellent jubilee year supper ball, where members delegates and their guests danced energetically to one of the best bands in Sri Lanka. A dance souvenir was published to mark this occasion. There were two receptions given to the members, official delegates and their guests at the Hotel Lanka Oberoi.

Macaulay reminds us that 'knowledge advances by steps and not by leaps'. The 50th anniversary celebrations of the Sri Lanka Dental Association have provided us an opportunity to record the steps it has taken over the last 50 years, to assess their value in the context of present day practice and to gaze, albeit wistfully, into the future.

* * *

EDITORIAL NOTICES

The Sri Lanka Dental Journal is the official annual publication of Sri Lanka Dental Association. The Editor invites original articles, research papers clinical reports and review papers for publication in the Sri Lanka Dental Journal. All manuscripts are subject to editorial modification and when accepted become the property of the Journal. All papers will be referred to a panel appointed by the council of the Sri Lanka Dental Association. **Manuscripts not conforming to the standard requirements will be rejected.** Once published, the article should not be reprinted without permission from the Editor.

Information for Authors

Arrangement: Articles should be typewritten on one side of a 8" X 10" paper, with double spacing and margins of at least $1\frac{1}{2}$ inches. The author's name and qualifications should appear under the title and his postal address at the end of the article. **The total length of the article should not exceed six such typewritten sheets.**

Format: The article should conform to the following format. **An abstract of approximately 100 words, introduction, materials and methods, results discussion, acknowledgement and references.**

References: These should be placed at the end of the article and should conform to the following style: name of author, title of article, name of periodical, volume inclusive pages, month and year. The form of reference to a journal article is: Robinson, J. H. Intravenous Anaesthesia for Oral Surgery. B. D. J. 24: 7-19, 12 Dec. 1958. The form of reference to a book is: Goldman H. M. Periodontia. St. Louis, The C. V. Mosby Co., 3rd ed , 1953 (p. 378). References should be numbered and placed in the same order as that of the superior figures which appear in the text.

Illustrations: Illustrations accompanying the manuscript should carry the word "top" and a number corresponding to the figure number in the text.

**THE 71ST ANNUAL WORLD DENTAL CONGRESS OF THE
FEDERATION DENTAIRE INTERNATIONALE IN CONJUNCTION
WITH THE 15TH GENERAL MEETING OF THE JAPANESE
ASSOCIATION FOR DENTAL SCIENCE - NOVEMBER 14TH - 20TH 1983**

A. RANJAN ABEYASINGHE

Delegate to the Congress - President, S.L.D.A

The Federation Dentaire Internationale (F.D.I) was founded in Paris in the year 1900, and for the first time the Annual World Dental Congress of the F.D.I. was held in Asia in the city of Tokyo - Japan. The main venue was the prestigious New Otani Hotel. This Congress was held in conjunction with the 15th General Meeting of the Japanese Association for Dental Science. More than 4000 delegates from seventy four countries attended the Congress. Only those foreign delegates who are supporting members of the F.D.I. as well as all Dental Surgeons, Physicians and Dental students from Japan were eligible to attend.

I had the honour and privilege of attending this Congress as President of the Sri Lanka Dental Association. The immediate past President, Dr. Lionel S. W. Dassanayake, and Dr. K. D. G. Saparamadu, Consultant Dental Surgeon, Health Education Bureau, Ministry of Health, were the other Sri Lankan delegates to the Congress.

The Congress presented two aspects, the Scientific and the Social Programmes for delegates and their wives.

The Scientific Programme of the 71st Annual World Dental Congress of the F.D.I. in Tokyo was conducted under the slogan "The Contribution of Dentistry to a Long, Happy and Healthy Life".

"The Longevity of the Human Dentition" was discussed from different angles:—

1. Preventive Measures for Preserving the Longevity of the Dentition"
2. "Goals for Oral Health by the year 2000 as advocated by the World Health Organisation"
3. "Recent Developments in the Delivery of Dental Care which contribute to the Longevity of the Dentition".

The 15th General Meeting of the Japanese Association for Dental Science, in conjunction with the Congress, held useful discussions under the following theme -

"Diagnosis and Therapy in the future - "Use of Electronics in the practice of Dentistry", and "Current Topics in Dental Practice".

The Scientific Programme also included free communications covering all fields of Dentistry, Table Demonstrations and films.

Simultaneous interpretation in English, French, German, Spanish and Japanese was provided.

On the afternoon of the 16th Tuesday November 1983 a splendid fanfare of Japanese musical performances, and welcoming addresses by the officials representing the Japanese Government, F.D.I. and the J.A.D.A. heralded the opening ceremony of the Congress at the Nippon Budokaun Hall.

Their Imperial Highnesses, the Crown Prince and Princess of Japan opened the ceremony which was attended by the Japanese Prime Minister, Yasuhiro Nakasone, the Minister of Health and Welfare, Yoshio Hayashi.

The opening ceremony depicted Japanese culture - Song, Music and Dance in all its splendour. The decor consisted of a specially designed back-prop of the emblem of the Congress - Mount Fuji with a spray of Cherry blossoms.

On either side of the stage hung the National Flags of the countries attending the Congress. Music and dances which followed illustrated the theme of "Four Seasons in Japan". Traditional Japanese musical instruments were used by the orchestra, accompanied by fascinating drum music, dating back to the 14th Century. Dr. Mikio Shirasu, President of the Japanese Association for Dental Sciences. in his Address said - "We have for many years been hoping to host an Annual World Dental Congress of the F.D.I. in Japan. We are pleased that at last our dream has become a reality, we are able to welcome our friends from the furthest corners of the earth".

He was followed by Dr. Thorsten Aggerd of Sweden, the outgoing President.

Prizes were awarded to Drs. M. Craft, R. Croucher, M. James, M. Clements and A. I. Rodgers of the U.K. for their work entitled "Natural Nashers". Prof B Brin and H. Brin of Denmark received the Professional Education award for research on "Public Health Projects, Philosophy and Model Implementation and Experiences". This was followed by a breath taking performance by a group of 150 children playing violins, their ages ranging from 3 to 12 years who were students of the Suzuki Institute of Intellectual Development. They played Vivaldi and Bach to an appreciative audience. The opening ceremony was brought to a close by the traditional roll call of Nations, where the delegates stood up to receive the greetings of fellow delegates. It was indeed a memorable experience.

In conjunction with the Congress - 83 F. D I. DENTAL EXPO TOKYO was held at the Tokyo International Trade Centre in Harumi for three days - November 14th to 16th. There were 200 companies both from Japan and overseas exhibiting in a total area of 8980 square metres. It was claimed that this Trade Exhibition was the largest ever held in Asia and well known manufacturers and distributors displayed the latest range of Dental materials, equipment, apparatus and pharmaceuticals.

Over 100 papers were presented at the Scientific sessions. Some of the interesting ones were :-

- 1) The dentition is intended to last a life time. Prof. Anja Ainamo (Finland)
- 2) Masticatory efficiency : the effect of age, the loss of teeth and prosthetic rehabilitation. Prof. G. E. Caarlson (Sweden)

- 3) The effect of the loss of teeth in diet and nutrition. Dr. H. Chauncy (U.S.A.)
- 4) What are the psycho-social factors involved in motivating individuals to retain their teeth - Dreams and Facts. Dr. M. Ruel-Kellermann (France)
- 5) Effects of comprehensive preventive programs on oral health in children and juveniles in congested industrial areas. Prof. Walter Kunzel
- 6) Prevention of oral diseases in developing countries. Dr. K. D. G. Saparamadu (Sri Lanka)
- 7) Future control of Dental diseases by immunisation - Vaccines and oral health. Dr. W. M. Wilton (U.K.)
- 8) Tooth substance saving restoration by biological caries approach. Prof. Hosoda (Japan)
- 9) A simplified periodontal screening examination. The Community treatment needs index (W.H.O.) in General Practice. Dr. J. L. Croxson (New Zealand)
- 10) Application of the computer in orthodontic diagnosis. Dr. B. Solow (Denmark)
- 11) Adhesion of 4-Meta. Adhesive resin to tooth substances and dental alloys. Prof. E. Masuhara (Japan)
- 12) Endosonic endontics. The ultrasonic synegetic system. Dr. H. Martin (U.S.A.)
- 13) Clinical and experimental evaluation of Laser therapy of oral disease. Prof. K. Furumoto (Japan)
- 14) Medical Engineering for Conservative dentistry. Prof. I. Sunada (Japan)
- 15) Use of titanium or titanium alloys in dental treatment. Prof. K. Ida (Japan)

The social programme consisted of a large number of tours arranged for the delegates. I had the opportunity of joining a 3 day tour to Kyoto and Nara 700 kilometers from Tokyo by the "Bullet" one of the world's fastest trains. In Kyoto we were taken to see the Sanjuangendo Hall, Heian shrine, Kiyomizu temple, Nijo castle, Kinka kuji temple (Golden Pavilion) and in Nara the Hyodoin temple, Todaiji temple and Kasuga shrine.

The short tours were classified as City Tours, Japanese culture, Special interest tour Night tour and technical visit.

The villege life and crafts tour took us to a paper-toy maker's workshop manufacturing celebrated Daruma dolls of paper-mache; a 200 years old Japanese farm house; a Bonzai village to see the fascinating art of raising miniature potted trees; a doll-making town to observe first-hand demonstration of how intricate Japanese dolls are made and costumed.

Another tour in the category of "technical visit" which impressed me was the automated computer controled car factory of Datson Nissan Motors, one of Japan's foremost auto manufacturers, and also the Amada Company - a well known manufacturer of Industrial robots.

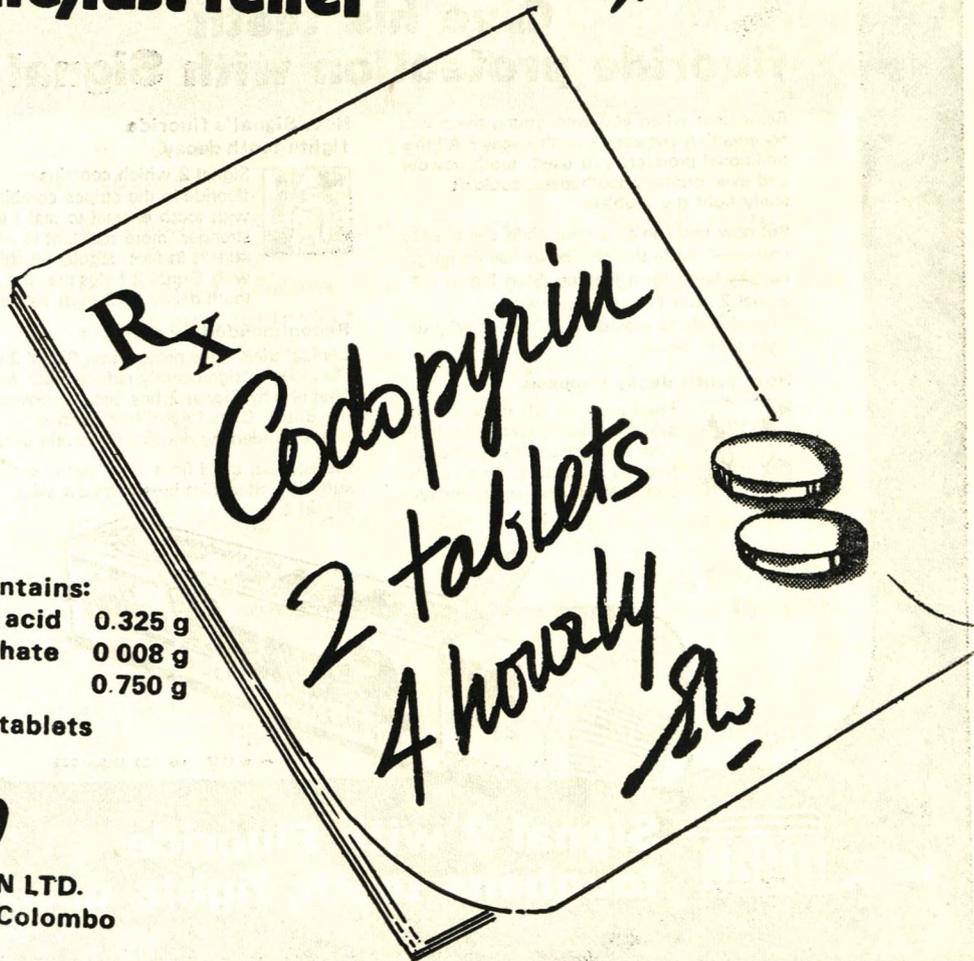
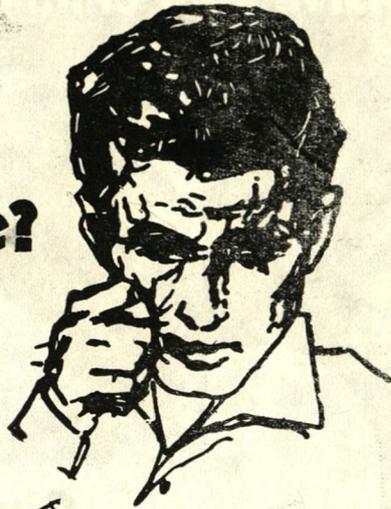
I took the opportunity of visiting the Tokyo Fine Arts University, and a number of Arts Galleries situated in a cultural area called Ueno. During the sessions the All-Japan Dental Art Exhibition was held at the Salon Ginza where Japanese Dental Surgeons who are artists held an Art Exhibition of nearly 200 paintings and wood block prints.

The high-light of the social events was the Japan Night held at the Nihon Seinen-kan Hall. The programme gave the delegates an opportunity to enjoy a variety of entertaining items which included a classical Kabuki dance and folk dances selected from various districts of Japan, and also the traditional Japanese drumming.

The Dinner-Dance held at the Hotel New Otani Ball Room on the final night was a great success, and with this Dance the 71st World Dental Congress of the F. D. I. was brought to a grand finale.

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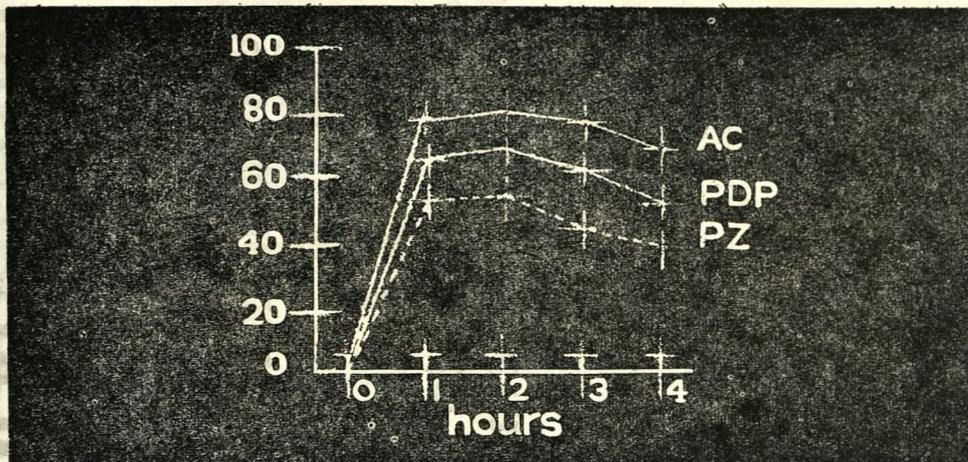
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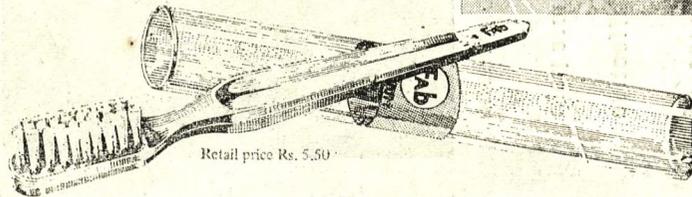
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