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ORGANISATION OF DENTAL SERVICES

IN

PAPUA NEW GUINEA

BY

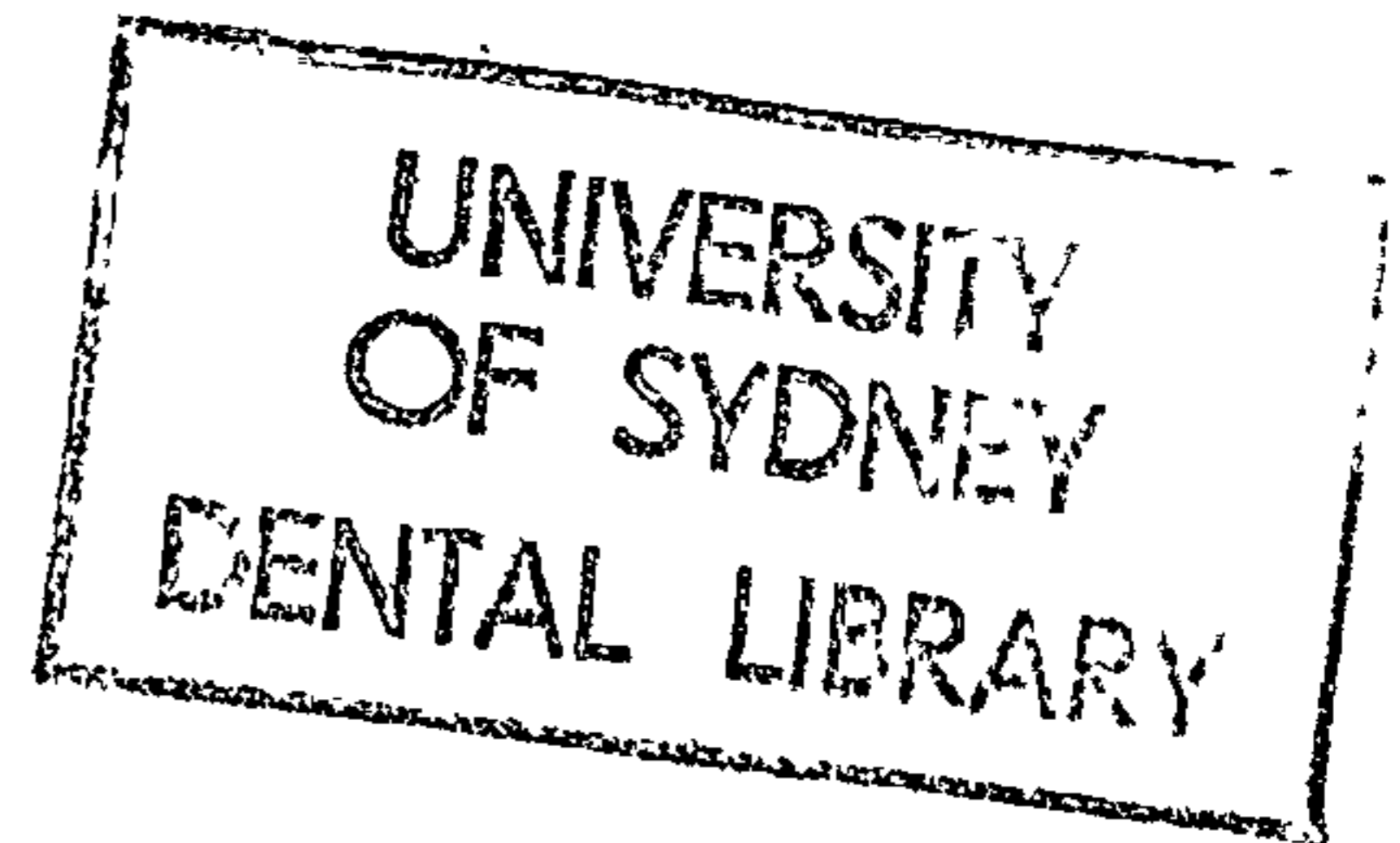
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A thesis submitted in partial requirement for the Diploma in  
Public Health Dentistry

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1973



The University of Sydney

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## INTRODUCTION

Papua New Guinea was formed by the amalgamation of two separate Territories of Papua and New Guinea in March, 1949.

Papua was formerly called British New Guinea up to 1905.

New Guinea was made into a Trust Territory of Australia by the League of Nations in 1920.

The whole area is regarded as one country and is called Papua New Guinea.

Besides the mainland mass it includes larger island groups making the total area approximately 183,000 square miles. It extends from just south of the equator to 11° 40' south latitude and from the border with West Irian at 141° to 160° east longitude. In general the land masses are mountainous and rugged with thick jungles, large rivers and swamps, making the communication system very limited. Good roads are very few and most of the rivers are only navigable for short distances, largely dependent on air travel.

It has a population <sup>(5)</sup> of 2.47 million indigenes and .05 non-indigenes making the total population of 2.52 million.

There are 700 different languages spoken in the country.

There is a heavy annual rainfall and the climate for the most part is hot and humid with the notable exception of the highland regions.

Outside the relatively few and small main centres, most natives live in closely knit village communities generally of 100 to 300 people only, but wide variations occur. Many villages are virtually isolated from each other. The peoples' livelihood depends mainly on agriculture, based on a sub-sistence economy of staple foods, such as sago, sweet potato, taro, yams and bananas. The first of these is typical of swampy areas and the last of coastal strips, while

the sweet potato diet is typical of highland areas.

The indigenous people are generally small in stature by comparison with European races. Their life expectancy appears to be very low, but it is undoubtedly on the increase as the health services in general are increasing. There is wide diversity in educational levels and also in length of contact with Europeans.

Throughout Papua New Guinea, in common with most countries in the world, dental and oral disease is widespread and increasing.

In traditional village communities <sup>(7)</sup> there is widespread periodontal disease and a low dental caries prevalence which is increasing as people are becoming more urbanised. In urban communities dental caries prevalence is moderate to high and increasing due to dietary changes. Periodontal disease prevalence in urban communities is similar to that in village communities. Prevalence of malocclusion is extremely low in both village and urban communities.

For social, medical and economical reasons <sup>(7)</sup> a dental health service is essential to meet the needs and demands of the community. Failure in proper organisation to provide a curative, promotive and preventive service will ultimately lead to a demand for much more costly restorative and other treatment services.

The ultimate goal of Dental Public Health Service is optimal dental and oral health for the whole population, with adequate services available to ensure that each individual may preserve that enjoyable state without hardship.

## DENTAL PROBLEMS

### SECTION 1

1.1 It has long been believed that people living in primitive conditions and existing on diets of natural foods enjoy immunity from the common dental ailments; (2) dental caries; periodontal disease and malocclusion. Early health administrators and even epidemiologists were reporting excellent dentitions and well developed jaws of the indigenous people living in many such communities in Papua New Guinea. Actually, these early reports overstated both good and bad dental health of the people. The assessments were made only after some limited data had been presented from the epidemiological studies of prevalence of dental diseases in Papua New Guinea.

### 1.2 Dental Caries

The endemic level of this disease among the people undoubtedly varies from race to race and from region to region or even from village to village. There is not so much evidence of this though hints of it are constantly appearing in research reports. (2)

What has been found in Papua New Guinea among groups of people with no change of diet is a range of prevalence from nil or extremely low in coastal and most lowland groups to up to moderate or 21.80 percent of all teeth carious in highland population groups and some lowland swamp areas. The latter is about half the rate likely to be found in highly developed countries. This is already occurring in some urban areas and especially in Port Moresby and Lae.

A research study has revealed that the range of dental caries prevalence, among six different district groups, varied from 0, 1, 2, 3, 7, 7 decayed teeth per person. (2)

The Highland districts of Western, Eastern and Chimbu with an estimated 800,000 population showed 7 carious teeth per person affecting mainly surface facing cheek and lips. Southern Highland district for an estimated 150,000 people had 3 carious teeth per person on the buccal surfaces. Coastal, sub-coastal and island groups with some 1.05 million people have had 1 or 2 decayed teeth per person mainly in pits and fissures. An estimated 20,000 people living in the south-west of Papua accounted for 7 carious teeth per person in the proximal surfaces while about 150,000 in the Sepik River Valley in the northwest of New Guinea mainland have either no caries at all or an almost negligible prevalence in pits and fissures (Ref. PNG Encyclopaedia Vol.2, page 244, Dental Health - D.E. Barnes).

TABLE 1

The rounded statistics of relevance are:- (8)

<u>Rural</u>			<u>Low</u>	<u>Average</u>	<u>High</u>
Primary School	6 years	df 2.5-3	DMF 0.25	0.63	1
Age Groups	12 years		DMF 1	2	3
<hr/>					
Secondary					
Tertiary and					
Youth Age					
Groups	14-19 years		DMF 1.25	2.38	3.5
<hr/>					
Adults			DMF 1.25	2.38	3.5
<hr/>					

Data from research, personal observations and statistics from the field service have indicated that certain infant groups exhibit a prevalence of dental caries up to double the highest level recorded in rural groups.

### 1.3 Periodontal Disease (2)

Probably, if dental caries is one of the most prevalent diseases of modern man, periodontal disease is the most prevalent known to either modern or primitive man, although there may not be any changes in environment as in the case of dental caries.

The disease is closely associated with age, usually becoming more severe in the mid thirties and forties and in degrees from extremely mild to very severe. It has nearly always attacked all mature adults in the country. It is not unusual to find that 40 - 50 percent of adults have severe forms of this disease, a prevalence of forty five to seventy percent of adults with severe forms have also been reported.

By the age of twenty two the average Papua New Guinean has significant periodontal disease and by forty has it in a severe form. Very often older indigenous people have no teeth remaining and all 32 have been lost due to periodontal disease. The prevalence of this disease is, therefore, very high with no observed difference between the urban and rural groups which have been studied.

### 1.4 Malocclusion (2)

This term is used for any disharmony in jaw or teeth relationship and seems to have become more frequent in modern times. Among primitive people probably less than 10 percent suffered from this condition, whereas in highly developed and socially mixed populations 40 to 50 percent prevalence is not unusual.

At present Papua New Guineans in villages have suffered very little from

this condition. The prevalence of the disease falls within the range of nil to five percent. It is anticipated that with increasing urbanisation and inter-marriage the prevalence of malocclusion will increase among the people of the country.

### 1.5 Oral Cancer (2)

It has been a common experience in the country for central hospitals to receive patients suffering from massive tumours. These tumours are particularly adamantinomas, carcinomas and sarcomas. There is some evidence to suggest that oral cancer accounts for a much higher percentage of all cancer which is opposite to most highly developed countries.

### 1.6 Betel Chewing

This habit is prevalent only in coastal and low altitude areas. Betel chewing has been popularly associated with various oral lesions. There is some evidence from personal observations of an association between this habit and oral lesions such as leucoplakia of the cheek, periodontities and severe attrition of the teeth. This is especially so in older people.

## 1.7 OTHER ASSOCIATED PROBLEMS

### 1.7.1 Attitude of the Population

Although health education is a part of dental services provided, there is still ignorance of the people in general. There is very little or no understanding of the measures which they themselves can take to prevent or reduce dental diseases and of the existence and extent of available dental services.

### 1.7.2 Transport

Due to geographic and meteorological features of the country, there is always a problem of providing suitable and adequate transport facilities for delivery of good dental health services to all sections of the community in the country.

Land transport which is the cheapest is used only in some coastal areas. In the Highlands, islands and most coastal areas the dental patrols have to be carried out by air and sea transport or by foot which are very costly.

### 1.7.3 Equipment

In the interest of economy and efficiency, it is essential that equipment should be selected to suit the local conditions and that it should be standardised throughout the services. However, this is not so in the service. There are problems of supply of spare parts in a short time between bases. There is also lack of maintenance facilities for some centres. This sometimes causes the wastage and inefficient use of personnel.

### 1.7.4 Funds

It is estimated that personnel are being utilised at approximately 60 percent of their potential. The problem of under-utilisation appears to be multifactorial, but it is certain that the major factor is lack of logistic support in the provision of facilities, equipment and transport to undertake services and supervision. This lack of support is consistent due to the fact that there are insufficient funds available.

## 2. 2.1 RESOURCES - PART 1

2.1.1 The lack of resources is the major problem affecting the development of dental health programmes in the country. The lack of manpower, economic resources and the education of the people towards health make it impossible to cope with such a rapidly increasing population. The resources available at present are inadequate to provide comprehensive dental care for the whole community.

### 2.1.2 Manpower

The supply of dental care available and also the demand for dental

care depends upon the dental manpower resources available. If more dental manpower is available the needs and demands will be less.

The Department of Public Health employs four categories of dental personnel: Dental Officers, Dental Therapists, Dental Technicians and Chairside Assistants. The Dental Officers comprise of expatriates and local dentists. The expatriate officers are being recruited from overseas and work as contract officers.

Unfortunately, the number of expatriate dental officers leaving the service is increasing and the chances of recruiting more from overseas are becoming very limited. This may be due to the results of localisation taking place and less opportunities becoming available for this class of officer.

In addition to Departmental dental manpower, there are a number of dentists in private practice, missions, and the army. These are all expatriates and are supported by non-operating auxiliaries and some operating auxiliaries in the army service.

Dental Officer training <sup>(6)</sup> has not been so productive. The programme to date had only produced twelve (12) graduates who are currently undergoing a pre-registration period. Three of these twelve were previously dental therapists. No students, other than those from the dental therapist ranks, have been attracted to the course for a period of three years. At present there are two students in second year science and eight in first year science at the University of Papua New Guinea who have all indicated an interest in dental training. Full registration of some of the local resident dental officers will take place in 1973 and this may increase the number of field dental officers slightly.

The supply of dental therapists <sup>(6)</sup> from the Dental College into the field service has continued at an acceptable rate. Over eighty (80) dental therapists have graduated since the inception of this type of

training in 1956. The first graduation was in 1959. There are sixty seven (67) of these in the service today and a further four have undertaken training to become dental officers in the service. Of the four, three have graduated already as dental officers and are now undertaking their internship. The fourth is currently doing his second year studies at the University of Papua New Guinea.

Although resignations have been relatively high from this group of personnel, salary adjustments through re-classifications designed to give more opportunities for advancement should curb this trend. There is a possible need to review the rate at which Dental Therapists are trained in ratio to the number that can be absorbed in the field. Under-utilisation of this category of personnel has now become quite apparent, especially in regard to availability of funds for logistic support which is the vital factor.

Dental Technician training <sup>(6)</sup> has also proceeded without any problem and has continued to attract an adequate supply of students since its inception in 1962. There are now eighteen (18) in the service. However, because of the shortage of dental officers this category of personnel is being under-utilised. Because of this there have been opportunities made available for dental technicians to be retrained to become prosthetic therapists whereby they can do certain dental therapist duties.

The supply of chairside assistants is quite adequate at present. There are now sixty two (62) of them in the service. The number of chairside assistants is dependent upon the number of operators in the field service who employ these assistants. This category of dental personnel are recruited locally (from the same area where they come) and trained on the spot by dental officers or dental therapists who employ them. However, recommendations have been made to give formal training courses for

chairside assistants in future.

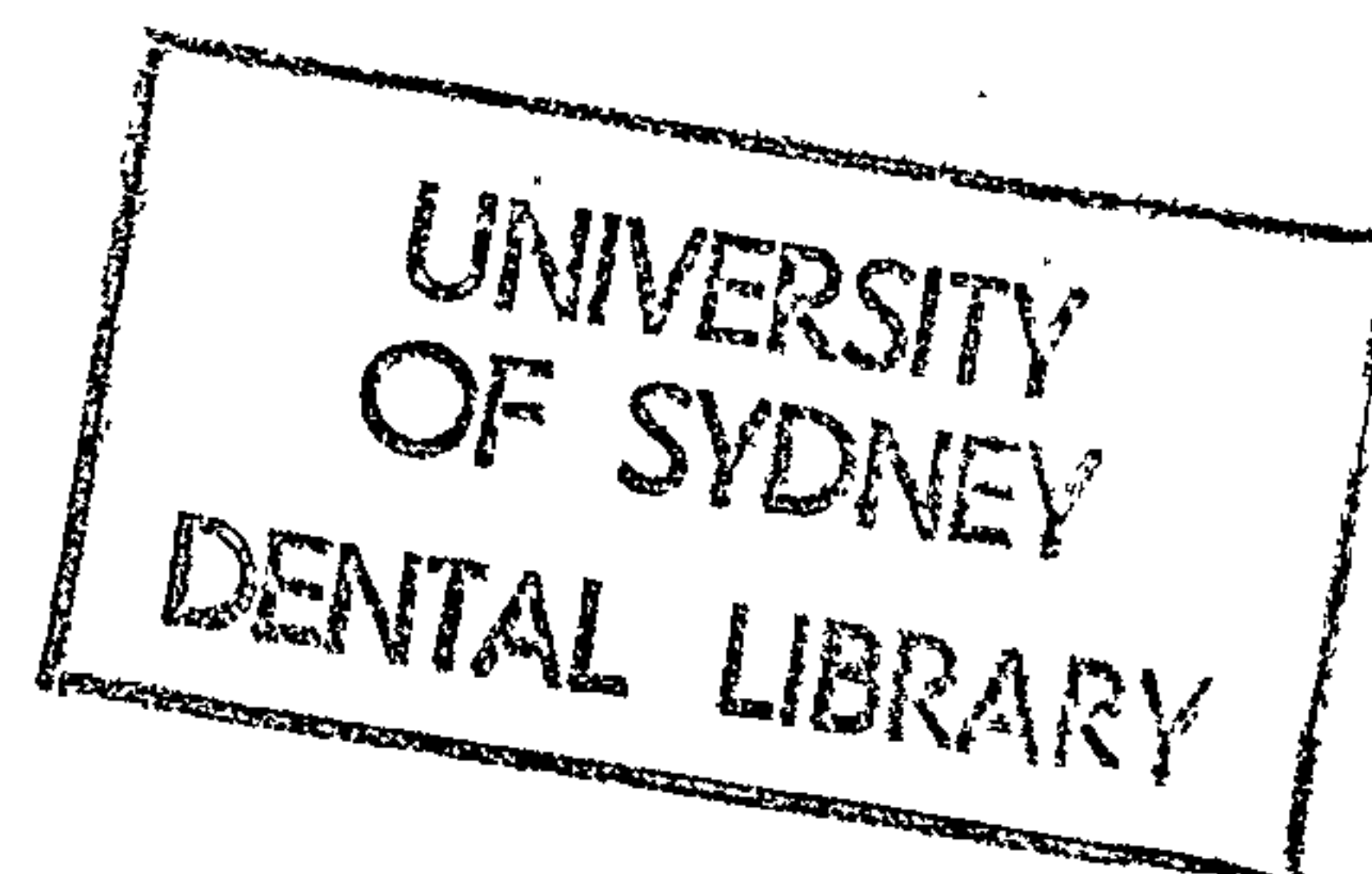


TABLE 2  
THE TOTAL STAFF OF THE PUBLIC HEALTH  
DEPARTMENT AS OF APRIL 1972 (8)

CATEGORY	SERVICE			TRAINING			TOTALS		
	O/S	L	Tot.	O/S	L	Tot.	O/S	L	Tot.
Dental Officer	14	10*	24	4	—	4	18	10	28
Dental Therapist	1	** 57	58	—	2	2	1	59	60
Dental Technician	—	16	16	1	1	2	1	17	18
Dental Orderly	—	56	56	—	—	—	—	56	56
Other	3	1	4	3	10	13	6	11	17
<b>TOTAL</b>	<b>18</b>	<b>140</b>	<b>158</b>	<b>8</b>	<b>13</b>	<b>21</b>	<b>26</b>	<b>153</b>	<b>179</b>

\* Includes Resident Dental Officers

\*\* Includes Enrolled as well as Registered Auxiliaries

O/S = Overseas

L = Local

In addition to the Departmental Dental Officers there are twelve (12) dentists in private sector (6 in private practice, 2 in the Army and 4 in Missions). The number of auxiliaries (operating and non-operating) employed is not available.

TABLE 3  
 THE TOTAL DENTAL STAFF OF THE  
 PUBLIC HEALTH DEPARTMENT AS OF JUNE, 1973 <sup>(6)</sup>

CATEGORY	SERVICE			TRAINING			TOTALS		
	O/S	L	Tot.	O/S	L	Tot.	O/S	L	Tot.
Dental Officer	11	15*	26	5	—	5	16	15	31
Dental Therapist	—	** 66	66	—	1	1	—	67	67
Dental Technician	—	** 18	18	1	1	2	1	19	20
Dental Orderly	—	60	60	—	2	2	—	62	62
Other	2	2	4	2	11	13	4	13	17
<b>TOTALS</b>	<b>13</b>	<b>161</b>	<b>174</b>	<b>8</b>	<b>15</b>	<b>23</b>	<b>20</b>	<b>176</b>	<b>197</b>

\* Includes Resident Dental Officers

\*\* Includes Enrolled as well as Registered Auxiliaries

O/S = Overseas      L = Local

In some rural health centres where there is no operating dental personnel available, medical officers and health extension officers provide relief of pain services.

Certain plantation managers are also given some practical training courses to provide relief of pain treatment when required by their plantation labourers.

### 2.1.3 Dental Health Services

These services are available as a part of general public health services.

The planning and organisation of these services are also within the framework of basic health services of the Department of Public Health to provide a total health service in all areas.

Dental health services consist of two components: (1) the School Dental Service; (2) Dental Services for the remainder of the community - the General Service.

The school Dental Service is the basis of the Dental Health Service and provides free preventive and curative services for all school children up to 15 years of age, that is, the primary school children.

All eligible children are registered and receive regular treatment on a recall system from registration to 15 years. The recall period is set at one year for areas having low caries prevalence and six months for high prevalence areas which virtually covers most European and Asian children. The consent of parents is always sought before a child is registered in School Dental Service.

The school service is the top priority project of the Dental Health Service with a rationale of preserving and promoting dental health by primary and secondary prevention into adulthood. At this stage it can be maintained or abandoned by choice of the individual.

Out of the total school population of little over 240,000 <sup>(5)</sup> in the country at present, 36% of this school population is registered under School Dental Service and receive regular dental care. There will be more schools registered in future with the increase of dental manpower.

General or adult service is provided for all sections of the community not treated under the school service or by private and mission practitioners. Whenever private practitioners are available, Europeans, Asian and mixed

race residents may not be treated by Departmental Officers except where they are referred or refused treatment by the private practitioner. All treatment carried out in the (Government) General Service is on a fee-for-service basis.

General treatment is based primarily on demand and, except for strict relief of pain treatment, is dependent upon the resources of the service. These resources are such that certain restrictions may apply.

Such restrictions are on the range of treatment that can be provided outside that for relief of pain or for the removal of acute or gross oral infection. These restrictions usually preclude major elective dental surgery (such as full mouth rehabilitation programme) and programmes designed only for aesthetics.

#### 2.1.4 Private and Mission Sector<sup>(8)</sup>

Although not a major one, the private practice contributes in the total dental health service by meeting special demands particularly for the expatriate population. It provides much wider range of special services. It is expected that this contribution will continue at about the same level.

Historically, Mission services have not made a major contribution to dental health services. Where they have been in operation, Mission services have usually complemented, but occasionally replacing Government dental services in that area.

#### 2.1.5 Finance

Dental health service is almost entirely financed by the Government from the public fund. Only a very small section is financed privately, mostly by the expatriate community through private practice.

The Dental service receives an annual allocation from the

total Public Health Department budget. Other sections of the health services also receive allocations from the same departmental budget.

The annual budget for dental service, including field services and training, is about 4 percent of the total Health Department Budget.<sup>(8)</sup>

Of the total dental allocation, 80 percent is currently made up of salaries and personal allowances. This means only 20 percent is left for running the field services and training programmes.

In 1971/1972 the Dental Service<sup>(8)</sup> was allocated approximately \$570,000 - 4 percent of the total budget for Health Department. From this allocation approximately \$87,000 - 15 percent was utilised by Dental Training.

TABLE 4  
ANNUAL EXPENDITURE DENTAL DIVISION  
INCLUDING DENTAL COLLEGE 1971 - 72<sup>(8)</sup>

	%	<u>College</u>
\$446,670 General salaries and allowances	78	\$64,000
2,100 Wages	0.3	2,100
2,800 Extra duty pay	0.4	200
10,100 Printing and incidentals	2.0	200
10,750 Travelling fares and allowances	2.0	
14,500 Leave travel fares	2.0	2,800
22,000 Motor transport	4.0	4,500
Postal and Electricity charges		33,192
5,500 Stores	1.0	2,710
750 Library	0.1	700
33,000 Dental Equipment and supplies	6.0	4,500
20,000 Capital Equipment	4.0	1,000
<u>1,000 Training Student's fares</u>	<u>0.1</u>	<u>1,000</u>
<u>\$568,970</u>	<u>99.9</u>	<u>\$86,902</u>

The field services are under-utilised principally due to lack of logistic support. As the shortage in available facilities varies from district to district, it might not be possible to make a detailed estimate of resources necessary to obtain optimum utilisation of existing services. However, a gross estimate based upon the present distribution of funds within the dental service budget can be made.

The field service budget (i.e. total allocation less the training component) is \$482,000 with a distribution of \$368,500 for salaries and \$113,500 for logistic support. Salaries therefore comprise 76 percent of available funds instead of a more usual figure for field service, of 68 percent. Thus an increase in logistic support level of approximately \$132,000 per annum is required in order to:

- (a) carry out supportive supervision,
- (b) transport personnel and equipment between bases and sub-bases,
- (c) supply adequate equipment and materials and
- (d) provide simple, but adequate clinics and housing.

Assuming that field service vote be  $\$368,500 + \$113,500 + \$132,000 = \$614,000$ , which is an overall increase on the field service vote of approximately 27 percent.

This would entail an increase in the total dental service allocation for 1973 to approximately 5.1 percent of the total allocation for the Department of Public Health.

## 2.2

## RESOURCES - PART II

### 2.2 . 1 Treatment

The major contribution to dental treatment services has been made by public health dental personnel. The greater part is being carried out by school dental therapists whose major target has been school children.

The school dental therapists are expected to devote 90% of their duty hours to the School Dental Service and 10% for relief of pain treatment for adults. Any treatment beyond the scope of training for auxiliaries is referred by the therapists to the nearest dental officer.

Specialised treatment such as orthodontics or the care of the caries prone child, surgical or radio-graphic services are provided in central or base clinics by the dental officer.

Dental officers usually provide specialised and private services which cannot be provided by dental therapists and in areas where there are European and Asian children in the school dental service, the dental officer in most cases provides treatment services for these children only.

The treatment service is intended to be functional rather than aesthetic. Amalgam, silicate fillings, uncomplicated extractions and dental prophylaxis are the routine treatments provided.

### 2.2 . 2 Priority Groups<sup>(8)</sup>

The dental service is directed to a variety of groups of persons in the community. It is governed by the over-riding principle that the relief of pain and the treatment of infection, acute major pathological conditions and trauma should have the first priority in the dental treatment service programme.

The identification of priority groups is based on the following criteria:

- (a) the prevalence of dental diseases
- (b) the principles of early diagnosis and treatment
- (c) the formation of attitudes and behavioural patterns favourable to oral health
- (d) the degree of accessibility, availability and mobility of the groups
- (e) the feasibility of audit, evaluation and supervision

Accordingly the priority groups are listed in their order of importance. <sup>(11)</sup>

- (a) Urban primary and all secondary school children
- (b) Highland rural primary children
- (c) Other rural primary school children
- (d) Tertiary institutions (para-medical, nursing and teachers' colleges) armed services and police
- (e) Industrial and plantation employees
- (f) Urban adults
- (g) Rural highland adults
- (h) Rural adults

The pre-school children, nursing and expectant mothers do not come under school dental service. It is assumed that some form of dental health education is given by the Infant Welfare nursing and the general health educators to the nursing and expectant mothers.

The service has emergency curative and preventive roles.

### 2.2 . 3 Emergency Service

The emergency treatment services include relief of pain, removal of acute and gross infection, mainly extractions and the interception of conditions that will surely lead to acute or gross infections, e.g. filling a large cavity that would be expected to involve the pulp within two or three months.

Any emergency treatment which requires a major surgery is referred to a base hospital where a dental officer and the facilities are available. Sometimes a medical surgeon is also required for these services.

In base hospitals the relief of pain service is made available at all times even outside official working hours.

### 2.2 . 4 Curative Service

The curative service provides treatment on demand, for dental and oral pathology including oral surgical services at base hospitals.

The annual reports of the Dental Health Section of the Department of Health reveal that demand for curative service by non-school groups is at the level of 5 percent of the population per annum - rising to 10 percent per annum in very limited urban areas. The demand is mainly for relief of pain services.

The demand for non-emergency dental care is very little. Less than 1 percent of the population seek this kind of service. <sup>(8)</sup>

The demand for prosthetic care is also very little. Only one person in every 750 people in the population seeks prosthetic care. <sup>(8)</sup>

There is no statistic data available for demand of curative service for orthodontic treatment. From personal experience, the demand is very

little and nobody seems to seek this service, although some facilities are available at the Dental College.

The curative services, or treatment given on demand, apart from relief of pain treatment, depends upon the resources available, therefore, not all the demand services are met.

Expatriates are expected to have elective or complicated treatments performed by private practitioners or during leave. In centres where there is no private practitioner, certain curative services are provided by the departmental dental officer.

#### 2.2.5 Preventive Services

The preventive service is directed mainly towards school children of both primary and secondary levels and tertiary students.

The preventive procedure used includes: restoration of permanent and deciduous teeth, fluoride topical application, prophylaxis, dental health education and fluoridation of public water supplies where applicable.

The first priority in preventive restorative treatment is given to the permanent dentition. Primary teeth are restored only when clinical judgement indicates that malocclusion is likely to occur as the result of premature loss of primary teeth.<sup>(8)</sup>

Topical fluoride is applied during the general prophylactic treatment. Stannous fluoride prophylactic paste is commonly used. All the children who are registered under school dental service receive this treatment once a year in low caries areas and six monthly in high caries areas.<sup>(7)</sup>

Dental Health education is given in all schools. Lectures are given to each class after completion of the class or the whole school.

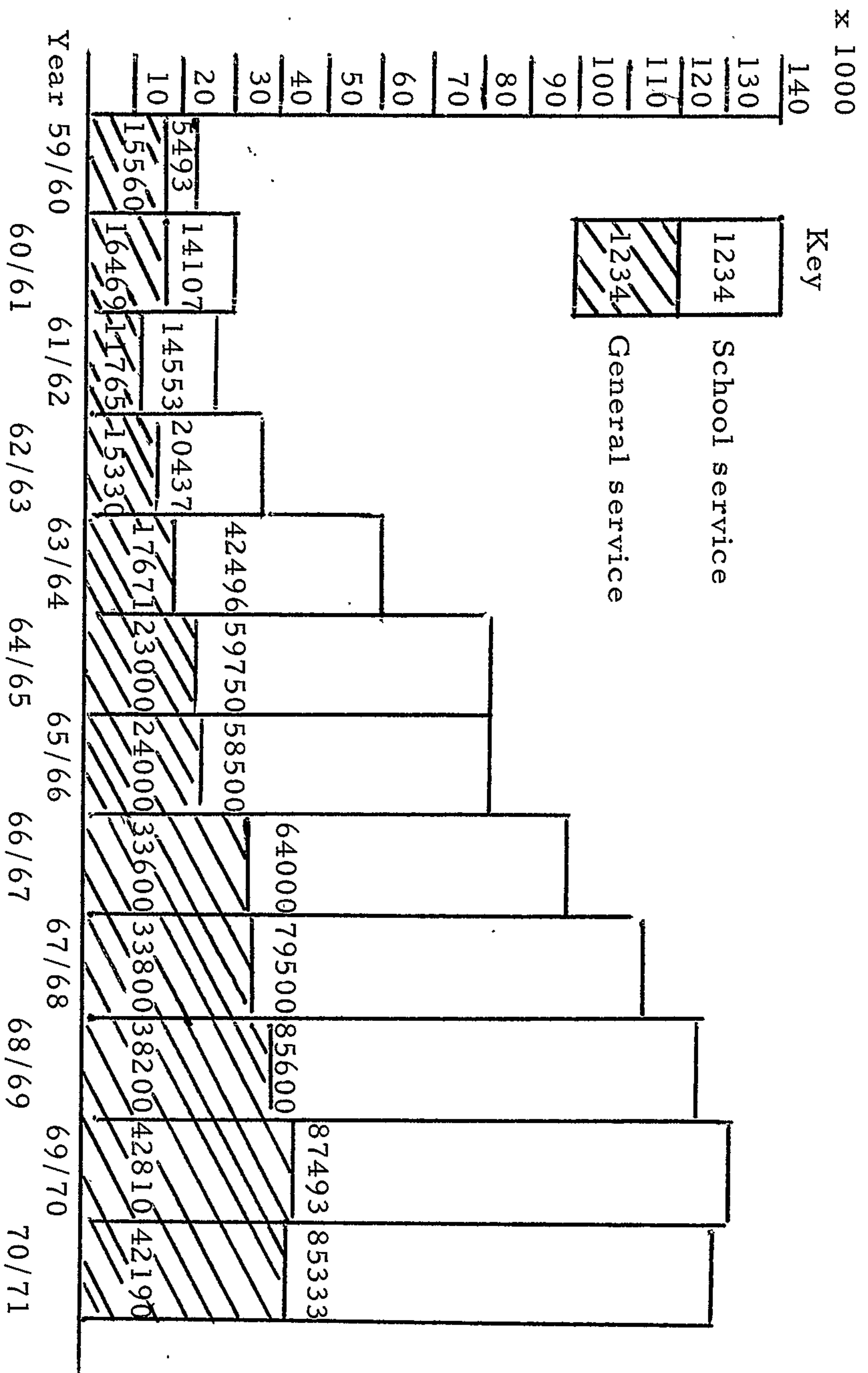
The main emphasis is on oral hygiene measures, diet and demonstration of toothbrush technique. Dental Health education is also delivered by

means of distribution of posters and leaflets to schools.

The addition of fluoride in public water supplies is being carried out only in Port Moresby. Therefore preventive measures by this method are being received only by children and adult groups in Port Moresby area. A bill providing for fluoridation of all existing or future reticulated water supplies is in existence. This will enable the fluoridation of more public water supplies in future.

All such treatments listed above are carried out primarily at the hands of operating auxiliaries with adequate supervision by dental officers.

# PATIENT ATTENDANCES



TOTAL DENTAL PATIENT ATTENDANCES PER YEAR IN PAPUA  
NEW GUINEA (PUBLIC HEALTH SERVICE FIGURES ONLY)

FIGURE 1

TABLE 5  
DENTAL STATISTICS (1) (6)

	School Service		General Service		School Service		General Service	
	1969-70	1970-71	1969-70	1970-71	1971-72	1972-73	1971-72	1972-73
1. Initial Examinations	40,583	42,095	-	-	35,905	45,436	-	-
2. Revision Examinations	45,790	42,229	-	-	42,020	38,468	-	-
3. Treatments completed	83,300	79,449	-	-	81,887	111,841	-	-
4. Extractions	9,059	9,472	27,568	29,635	12,274	12,505	21,797	17,276
5. Restorations	42,277	38,352	16,558	18,090	30,006	39,015	28,867	35,134
6. Periodontal Treatments	34,744	28,847	5,234	5,211	18,177	17,098	4,343	5,183
7. Total Attendances	87,493	85,333	42,810	42,190	76,378	87,224	51,700	54,033

## 2.2 6 PROVISION OF TREATMENT SERVICES

### 2.2 6 1 Clinics <sup>(6)</sup>

Dental care services are provided in forty five fixed clinics and three mobile dental units throughout the country. In main centres dental clinics are included as a part of hospital buildings. A few schools with large enough enrollment of students, also have fixed clinics. The mobile dental units are mainly used for school dental services.

### 2.2 6 2 Children

The services for school children are provided mainly in school premises where a temporary surgery is set up in a school building.

All urban schools are visited by the school dental team from the base clinics on a daily basis. Certain rural schools which may be closer to the base clinic can also be seen from the base clinic on a daily basis provided transport facilities are available.

School dental tours are carried out for all the rural schools with dental teams spending 3-4 weeks away from a base clinic. In most cases the school dental team is provided with accommodation by the particular school visited and the team remains in that school until examinations and treatment services are completed on children at the school. The team then moves on to another school.

Whenever a therapist completes his yearly school project before the end of the year special tours are arranged to visit the off-project schools. Treatment services are also provided in the premises of those schools.

### 2.2 6 3 Adults

Adult dental care services are provided mainly in fixed clinics at base hospitals. Some adult services are also provided in villages during school dental tours - mainly extractions for relief of pain.

Where the need arises, sometimes, from outlying areas, patrols are arranged for a dental team to visit these areas to meet the emergency needs of the people.

#### 2.2 6 4 Special Groups

Special groups such as prisoners, old age pensioners and indigents also come under general service and are given treatment services in base clinics. However, only they are eligible for free treatment services.

The provision of dental services are consolidated in centres of maximum priority wherever possible, even to the extent whereby some of the clinics from certain outlying areas have been withdrawn because of lack of logistic support.

#### 2.2 6 5 Dental Charges (4) (11)

Fees for dental treatment outside the School Dental Health Service were revised in 1969 (the only revision since fees were introduced in 1958) and became effective from 15th January, 1970.

Charges are raised only at gazetted centres (centres where a dentist is in residence). Under the amended legislation fees are also raised where an Administration dentist visits an "un-gazetted" centre.

For general information relevant legislation for dental charges is as under:

- (1) Dental Charges Ordinance 1969
- (2) Statutory Instrument No. 50 of 1969  
(Dental Charges Regulations 1969)
- (3) Gazettal of centres - Government Gazette  
No. 2 of 15th January, 1970 (amends  
Regulation No. 3)

Charges are raised under both the first and second schedules for treatment carried out by Dental Therapists when a Dental Officer is present at the "Centre".

The Director of Public Health Department or his Delegate has the power to waive charges under the Dental Charges Ordinance 1969.

The actual collection of fees and issuing of dental charges tickets (in denominations of 10 cents, 20 cents, and \$1.00) is handled by hospital staff, usually the same staff who handle tickets for hospital charges. New books for Central Charges tickets are obtained on demand by hospital staff from the Departmental Accountant, Department of Public Health, Konedobu - Port Moresby.

Any queries relating to dental charges are taken up in the first instance with Regional/District Health Officers and/or Area Finance Officers.

As these tickets are "Accountable Forms" they are not ordered by dental staff.

Because of administrative difficulties Dental Officers on patrol only raise debit notes.

A person whose gross family income exceeds two thousand dollars per annum is charged under first schedule or under second schedule if the person's family income does not exceed two thousand dollars per annum.

The rate of dental charges are in Tables 6 and 7.

TABLE 6  
SCHEDULE S  
FIRST SCHEDULE

Item No.	Service Categories	Fee
		\$ c
	Part I - General	
1.	Consultation or examination and advice	
	1) Consultation or examination and advice	2.00
	2) X-rays - (a) each	2.00
	(b) maximum, full mouth	14.00
2.	Examination and prophylaxis	4.00
3.	Prophylaxis, per visit	4.00
4.	Sedative dressings or emergency treatment for relief of pain or control of haemorrhage	2.00
	Part II - Fillings, Extractions etc.	
	Division 1, Fillings etc.	
5.	Fillings -	
	(1) Amalgam, each filling -	
	(a) one surface	4.00
	(b) multi surface	6.00
	(2) Synthetic porcelain, each filling	5.00
	(3) Dental cement, each filling	2.00
6.	Gold inlays -	
	(1) Each inlay - where incisal edge is involved	20.00

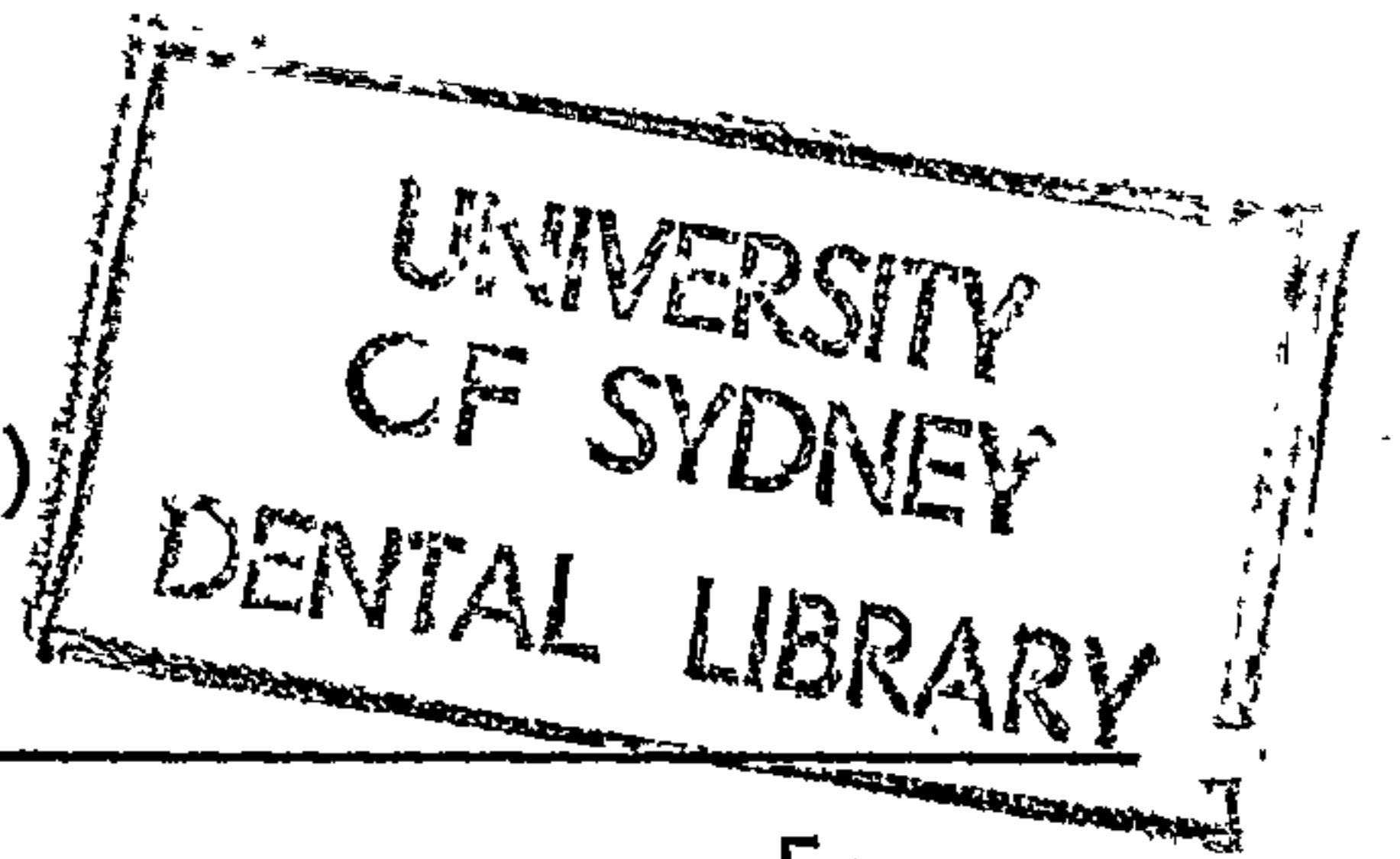
TABLE 6 (cont'd)

Item No.	Service Categories	Fee
	(2) Each inlay - where incisal edge is not involved	15.00
	(3) re-cementing inlays	2.00
7.	Crowns and bridges -	
	(1) Crowns, all types	25.00
	(2) Bridges - minimum for one pontic bridge	60.00
	(3) re-cementing	2.00
	Division 2 - Root Treatment	
8.	Root canal treatment -	
	(1) Pulp removal and root filling (one appointment)	14.00
	(2) Root canal treatment, (dressing for septic canals, each visit)	3.00
	(3) Root filling, subsequent to root canal treatment	7.00
	(4) Pulpectomy (pulpotomy)	7.00
9.	Root resection	14.00
	Division 3 - Treatment of Periodontal and miscellaneous infections	
10.	(1) Gingivectomy, including prophylaxis complete treatment	14.00
	(2) Infections - dressings, per visit	2.00
11.	(1) One tooth	3.00
	(2) Each additional tooth at the same visit	2.00

TABLE 6 (cont'd)

Item No.	Service Categories	Fee
		\$ c
	(3) Where appropriate, extraction of more than five teeth may be charged under Item 14, Part IV of the Schedule and not under this item.	
	Part III - Dentures Etc.	
12.	Dentures -	
	(1) Acrylic, full -	
	(a) upper or lower dentures	50.00
	(b) upper and lower dentures	100.00
	(2) Acrylic, partial -	
	(a) up to 4 teeth	30.00
	(b) for each additional tooth or clasp	2.00
	(3) Chrome cobalt or other metal bases: as for acrylic denture plus cost of metal casting	
	(4) Relining and remodelling, per denture	20.00
	(5) Repairs	
	(a) simple	5.00
	(b) complex	10.00
13.	Preventive orthodontic treatment -	
	(1) Where an appliance is not required	5.00
	(2) Where an appliance is required	30.00
14.	Part IV - Oral Surgery	
	Operations -	

TABLE 6 (cont'd.)



Item No.	Service Categories	Fee
		\$ c
(1)	Multiple extractions and all operations, per hour or part thereof	14.00
(2)	Post operative treatment, per visit	2.00
(3)	If patient is hospitalised fees are chargeable under the Public Hospitals (Charges) Ordinance 1955-1967	

TABLE 7  
SECOND SCHEDULE

Item No.	Service Categories	Fee
		\$ c
	Part I - General	
1.	Consultation or examination and advice	
	(1) Consultation or examination and advice with or without written report	0.20
	(2) X-rays -	
	(a) each	0.20
	(b) maximum full mouth	1.00
2.	Examination and prophylaxis	0.20
3.	Prophylaxis, per visit	0.20
4.	Sedative dressings or emergency treatment for relief of pain or control of haemorrhage	0.20
	Part II - Fillings, Extractions, Etc.	
5.	Fillings -	
	(1) Amalgam, each filling	0.20
	(2) Synthetic porcelain, each filling	0.20
	(3) Dental cement, each filling	0.20
6.	Gold inlays -	
	(1) (a) each inlay - where incisal edge is involved	1.00
	(b) each inlay - where incisal edge is not involved	4.60
	(2) Re-cementing inlays	0.20

TABLE 7 (cont'd.)

Item No.	Service Categories	Fee
		\$ c
7.	Crowns and bridges -	
	(1) Crowns, all types	5.00
	(2) Bridges, all types	15.00
	(3) Re-cementing	0.20
	Division 2 - Root Treatment	
8.	Root canal treatment -	
	(1) Pulp removal and root filling (one appointment)	1.00
	(2) Root canal treatment (dressings) for septic canals, each visit	0.20
	(3) Root filling, subsequent to root canal treatment	0.50
	(4) Pulpectomy (pulpotomy)	1.00
9.	Root resection	2.50
	Division 3 - Treatment of Periodontal and Miscellaneous Infections	
10.	(1) Gingivectomy, complete treatment including prophylaxis	1.00
	(2) Infections, per visit	0.20
	Division 4 - Extractions	
11.	Extractions -	
	(1) Single extraction	0.20
	(2) Each additional tooth extracted at the same visit	0.10

TABLE 7 (cont'd.)

Item No.	Service Categories	Fee
		\$ c
	Part III - Dentures etc.	
12.	Dentures -	
	(1) Acrylic, full -	
	(a) upper or lower dentures	14.00
	(b) upper and lower dentures	20.00
	(2) Acrylic, partial -	
	(a) up to 4 teeth	12.00
	(b) more than 4 teeth, each additional tooth	0.50
	(3) Chrome-cobalt or other metal bases: as for acrylic denture plus cost of casting	
	(4) Relining or remodelling, per denture	5.50
	(5) Repairs	
	(a) simple	1.00
	(b) complex	2.00
13.	Preventive orthodontic treatment	
	(1) Where an appliance is not required	1.00
	(2) Where an appliance is required	16.00
	Part IV - Oral Surgery	
14.	Operations -	
	(1) Multiple extractions and all operations, per hour	4.00
	(2) Post-operative treatment per visit	0.20

TABLE 7 (cont'd.)

Item No.	Service Categories	Fee
		\$ c
	(3) If patient is hospitalised, fees are chargeable under the Public Hospital (Charges) Ordinance 1955-1967	

## 2.2 7 TRAINING OF DENTAL MANPOWER (8)

### 2.2 7 1 Introduction

An effective dental training programme depends upon a suitable education system and standard of education for entry to dental school. There are also other factors such as types of facilities available for training programmes, financial resources, and number of students enrolled for dental training.

The types of dental personnel trained for a developing country depends upon the needs and demands of the community, dental disease patterns in the country, priority of disease prevalence and socio-economic level in the country.

Training patterns in a dental school in a developing country also changes when there are socio-economic, disease patterns or even political changes of the country.

### 2.2 7 2 Dental Manpower Training in Papua New Guinea

Dental Education and Training Programme in Papua New Guinea was reviewed by the "Expert Committee" in June, 1972. The Committee also made new recommendations in regard to training programmes. This committee consisted of consultants from overseas and from within the country. The following were the members of the "Expert Committee" -

- Dr. G. Gris (Chairman), Acting Chief of  
Dental Services, PNG
- Dr. J. Johnston, Principle of Port Moresby  
Dental College, PNG
- Prof. N.D. Martin, Dean of Faculty of  
Dentistry, University of Sydney, Aust.
- Prof. A.J. Radford, Faculty of Medicine,  
University of PNG

Dr. E. Seal, Regional Dental Officer, PNG  
Dr. D.E. Barmes, Dental Epidemiologist,  
W.H.O. Geneva

The training programme under this section is from the "Expert Committee's" report.

The dental education and training programme started in 1960 when the Dental College was formally established in Port Moresby. The programme is run by the Department of Public Health.

### 2.2 7 3 Training Facilities

Although the Dental College does not have modern training and teaching the existing facilities are adequate to train dental personnel to suit the local conditions. The Dental College is situated six miles from the city and about three miles away from the main general hospital. The plans have been drawn up to build the new teaching dental hospital near the existing teaching hospital for the Medical Faculty. The college has classrooms, teaching clinics, student accommodation and messing facilities all in the same compound.

### 2.2 7 4 Types of Personnel and Applicants for Dental Training

The Dental College trains the following personnel:

- (a) Dental Officers - male and female (dentists)
- (b) Dental Therapists - male and female
- (c) Dental Technicians - male only at present

By the recommendation of the Expert Committee with the change of syllabus the Dental Technicians will now be trained as Prosthetic Therapists.

The chairside assistants are apprentice-ship type and are trained in the field only.

2.2 7 5 Entry Standard

- a Dental Officer - University Entrance  
(Dentist)
- b Dental Therapist - Form 3 (pass with science, maths,  
and English but preferably  
Form 4)
- c Dental Technician  
(prosthetic Therapist) Form 3 of High School

2.2 7 6 Length of Training and Qualification Obtained

- a \*Dental Officer - 4 years - Diploma of Dental Surgery
- b Dental Therapist - 2 years - Certificate of Dentistry
- c \*\*Dental Technician - 3 years - Certificate of Dental  
(Prosthetic Therapist) Mechanics

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\*The Expert Committee recommended that a three and a half year under-graduate course followed by a one year internship leading to a degree in dentistry be implemented.

\*\*The Expert Committee recommended that the current course of training for dental technicians be expanded to include clinical aspects of prosthetic and this category of workers be known as prosthetic therapists.



period of post-qualifying experience as for a dental therapist.

## 2.2 7 7 Curricula

The old curriculum for each of the three categories of dental training personnel was reviewed by the committee and additions and eliminations of subjects were made. The number of hours for each subject were recommended as well.

The curricula for Dental Officers, Dental Therapists and Prosthetic Therapists are set out in the following diagrams.

A - Curriculum - Dental Officer Training

B - Curriculum - Dental Therapist Training

C - Curriculum - Prosthetic Therapist Training

## 2.2 7 8 Re-training Programme

Experience has been gained in a re-training programme through which three former Dental Therapists have now graduated as Dental Officers would continue.

In future a Dental Therapist who wishes to become a Prosthetic Therapist would be retrained in prosthetic clinical and laboratory techniques only.

A Prosthetic Therapist wishing to become a Dental Therapist would only retrain in the clinical component of the dental therapist course.

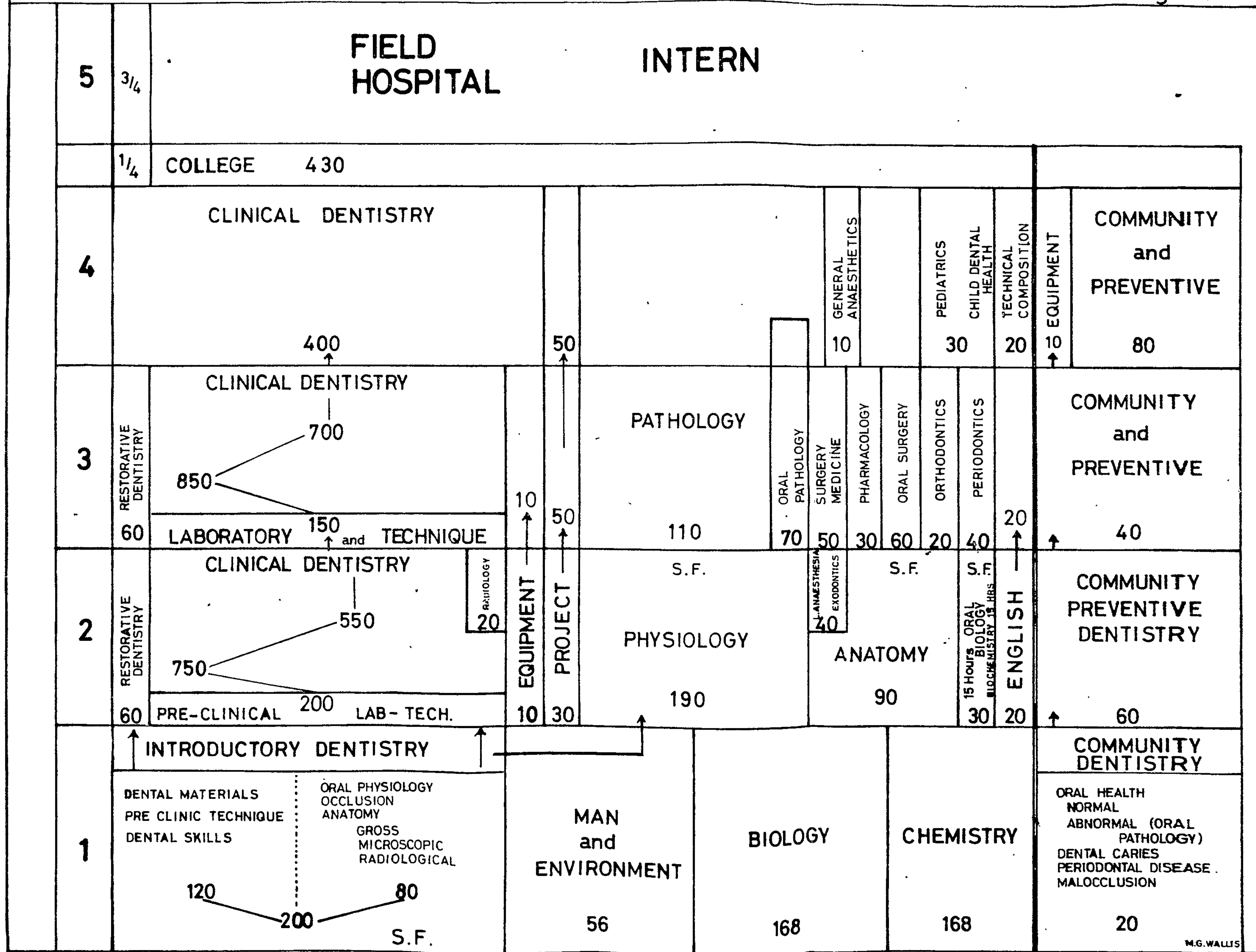
Retraining of present Dental Technicians who now possess only technical skills and no pre-clinical and clinical skills and biological knowledge would require to undertake the whole prosthetic therapist course (if they wish to become Prosthetic Therapists).

## 2.2 8 AVAILABILITY OF MANPOWER FOR DENTAL SERVICE

The number of expatriate Dental officers in the service is decreasing every year and this situation will continue. The Dental Health Service,

# DENTAL OFFICER

Diag. A

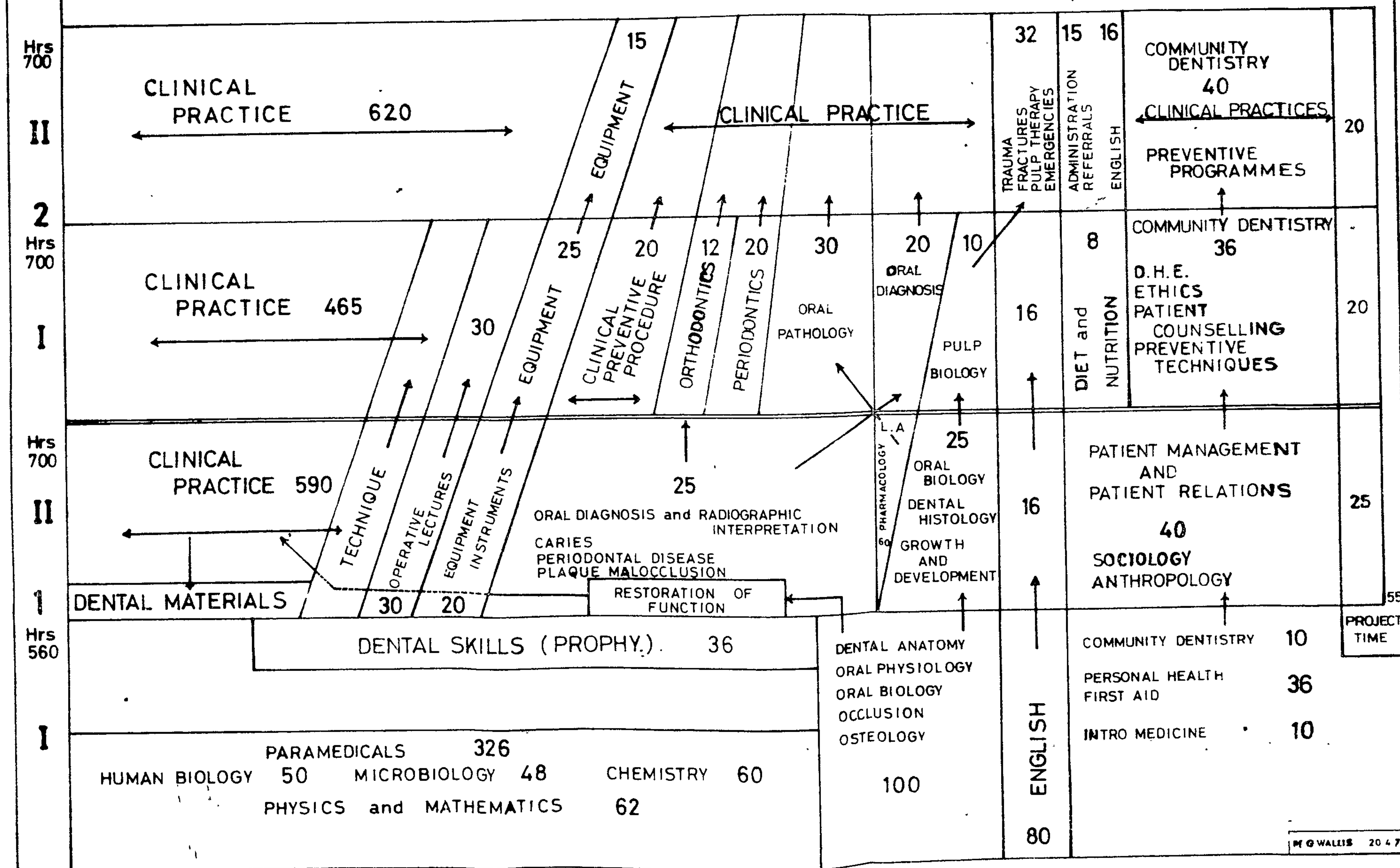


M.G. WALLIS

# DENTAL THERAPIST

Diag. B

## PROBATIONARY FIELD SERVICE ( 1 YEAR )

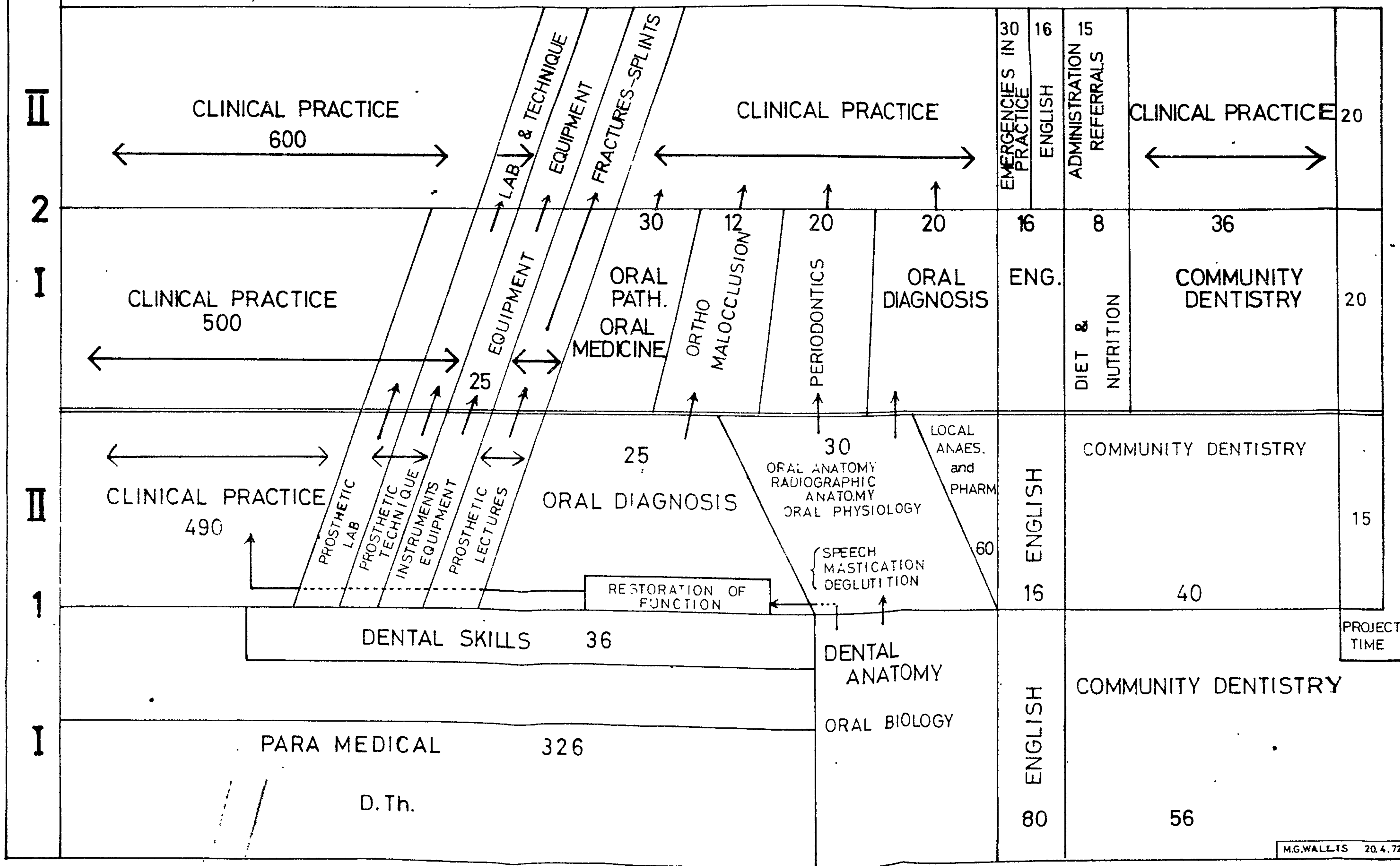


Diag. C

# PROSTHETIC THERAPIST

D.Th.(Shared)

## PROBATIONARY FIELD SERVICE YEAR (1 Year)



M.G.WALLIS 20.4.72

therefore, will have to rely on its local manpower resources. The number of personnel required in future must be estimated so that the Department of Public Health may be able to provide adequate logistic support, supervision and maintain adequate utilisation of dental personnel. It is necessary to bear in mind that producing more graduates than could be logistically supported in the field would be as great an error as producing fewer graduates than required to satisfy demand for dental care for the population.

The recommended number of trained output per annum is:

5 Dental Officers

15 Dental Therapists

2 Prosthetic Therapists

The above rate of graduates output per annum was recommended by the Committee. These proposed output ratios would be reviewed bi-annually with respect to:

- (a) The ability of the Department of Public Health to provide the necessary logistic support and supervision to maintain adequate utilisation of dental personnel.
- (b) The prevailing manpower attrition rates.
- (c) The prevalence of dental disease and the demand for service.

In reviewing the dental manpower situation at present the Committee made estimations for:

- (a) No. of students for dental training course per year 1972-1980 as shown in Table 8.
- (b) No. of dental operators required between 1972 and 1985 see Table 9.

TABLE 8

NO. OF STUDENTS FOR DENTAL TRAINING COURSE PER YEAR 1972-1980										
DENTAL PRACTITIONER	'72	'73	'74	'75	'76	'77	'78	'79	'80	LOCATION
PRELIMINARY YEAR	8	8	8	8	8	8	8	8	8	U.P.N.G.
1st CLINICAL YEAR	2	6	6	6	6	6	6	6	6	UPNG/D.C.
2nd " "	-	2	5	5	5	5	5	5	5	DENT. COLL.
3rd " "	-	-	2	5	5	5	5	5	5	" "
4th " "	-	-	-	2	5	5	5	5	5	" "
X 5th YEAR INTERN (1/4 YEAR)	3	5	3	-	1	2	2	2	2	" "
X REFRESHER COURSE (1/2 YEAR)	-	-	2	2	5	5	2	2	2	" "
TOTAL	13	21	26	28	35	36	33	33	33	
DENTAL THERAPIST										
1st YEAR	17	18	18	18	18	18	18	18	18	DENT. COLL.
2nd YEAR	10	17	15	15	15	15	15	15	15	" "
X REFRESHER COURSE (1/4 YEAR)	4	4	4	4	4	4	4	4	4	" "
TOTAL	31	39	37	37	37	37	37	37	37	
PROSTHETIC THERAPIST										
1st YEAR	6	3	3	3	3	3	3	3	3	DENT. COLL.
2nd YEAR	3	6	2	2	2	2	2	2	2	" "
3rd YEAR D.TECH COURSE/ X REFRESHER COURSE (1/2 YEAR)	3	3	6	1	1	1	1	1	1	" "
TOTAL	13	13	12	6	6	6	6	6	6	
ALL COURSES										
Total No. Students (non-clinic)	8	8	8	8	8	8	8	8	8	U.P.N.G.
Total No. Students (clinic)	49	65	67	63	70	71	68	68	68	DENTAL COLLEGE
TOTAL	57	73	75	71	78	79	76	76	76	
X FOR PART YEAR COURSE STUDENT NUMBER SHOWN IS THAT PRESENT AT ANY ONE TIME										
• INCLUDES PREVIOUS GRADUATES FOR RETRAINING IN NEW COURSE.										

TABLE 9

NUMBER OF DENTAL OPERATORS REQUIRED BETWEEN  
1972 AND 1985

SCHOOL	PATIENTS PER OPERATOR : URBAN			(Dentist or Therapist) RURAL			SCHOOL Population		Manpower Required	
	6 yrs.	7-12 yrs.	13-18 yrs.	6 yrs.	7-12 yrs.	13-18 yrs.	(6) 1972 1985 (000's)	1972	1985	
	1000	3000		2000	4000					
PRIMARY	2500		-	3750	-		225	450	65	150
SECONDARY	-		4000	-	5000		22	72	5	20
TOTAL									70	170

NON SCHOOL	PATIENTS PER OPERATOR (Dentist or Therapist)	POPULATION		% DEMAND		Manpower Required	
		1972	1985	1972	1985	1972	1985
		(000's)					
LOW DEMAND	6000			5	15	20	100
MODERATE HIGH DEMAND	1500	2250	3300	1	5	15	100
TOTAL						35	200

TABLE 10

**STAFF ESTABLISHMENT, PROJECTED  
1972-1973**

SALARY (1972)	STAFF CATEGORY	'72	'73	'74	'75	'76	'77	'78
\$11,800	PRINCIPAL (DENT/OFF. G4)	1o	1o	1o	1o	1o	1o	1o
\$22,318	SENIOR LECTURER (DENT/OFF. G3)	2o	2o	2o	2o	2o	2o	2o
\$10,193	LECTURER (DENT/OFF. G2)	1o	1o	1o	1o	1o	1o	1L
	LECTURER (DENT/OFF. G1)	-	-	-	1L	1L	1L	1L
\$ 1,655	SENIOR TUTOR (DENT/TH. G3)	1L	1L	1L	2L	2L	2L	2L
\$ 1,395	TUTOR (DENT/TH. G2)	1L	2L	2L	1L	1L	1L	1L
\$ 5,917	CHIEF INSTRUCTOR (PROS/TH. G3)	1o	1o	1o	1o	1o	1L	1L
\$ 1,395	INSTRUCTOR (PROS/TH. G2)	1L	1L	1L	1L	1L	1L	1L
\$ 775	LABORATORY TECHNICIAN	1L	1L	1L	1L	1L	1L	1L
\$ 5,317	MATRON (NURSING SISTER)	1o	1o	1L	1L	1L	1L	1L
\$ 1,330	DENTAL ORDERLIES	2L	5L	10L	10L	15L	15L	15L
\$ 1,460	ADMIN. ASSISTANT	1L	-	-	-	-	-	-
	ADMIN. OFFICER	-	1L	1L	1L	1L	1L	1L
\$ 4,135	STENO/SECRETARY	1o	1o	1o	1L	1L	1L	1L
	TYPIST	-	1L	1L	2L	2L	2L	2L
	MESSENGER/CLEANER	-	1L	1L	1L	1L	1L	1L
\$ 3,180	LABOURER/CLEANER	6L	6L	6L	6L	3L	3L	3L
\$ 3,221	MESS SUPERVISOR	1	1	1	1	-	-	-
\$ 1,995	COOKS	3	3	3	3	-	-	-
\$73,008	TOTAL SALARIES							
+ 2,000	ESTIMATED LEAVE FARES							
\$75,008	TOTAL							

L - Local Officer  
o - Expatriate Officer

(c) Staff establishment for training section between 1972-1978 see Table 10.

The number of students for dental training and the rate of output per year will depend on the number of secondary school leavers available and applying for dental training.

### 3. ORGANISATION

#### 3.1 Introduction

As the political head, the Minister for Health carries full authority for almost all activities of the Department of Public Health, including programmes for the prevention of disease and health education of the public. The Divisions of Medical Services, Medical Training and Mental Health are responsible to the First Assistant Director of the Health Department. The community health group comprises the Divisions of Maternal and Child Health and Environmental Health and the leprosy, tuberculosis and malaria control sections as well as the dental health section. The Assistant Director (Administrative Services), First Assistant Director and Assistant Director (Community Health) are responsible to the Director of Public Health. Among the administrative and management sections of the Administrative Division, there are the health education and epidemiology sections. Headquarters health functions are concerned with policy, planning, supervision, training and the continuing evaluation of health care and services.<sup>(11)</sup>

Some sixteen years ago, to facilitate administration and co-ordination of field services four regions were created and under which services were operated. These now have been abolished and the Department is committed to "districtisation". There are eighteen districts and each is directly responsible to Headquarters, Konedobu.

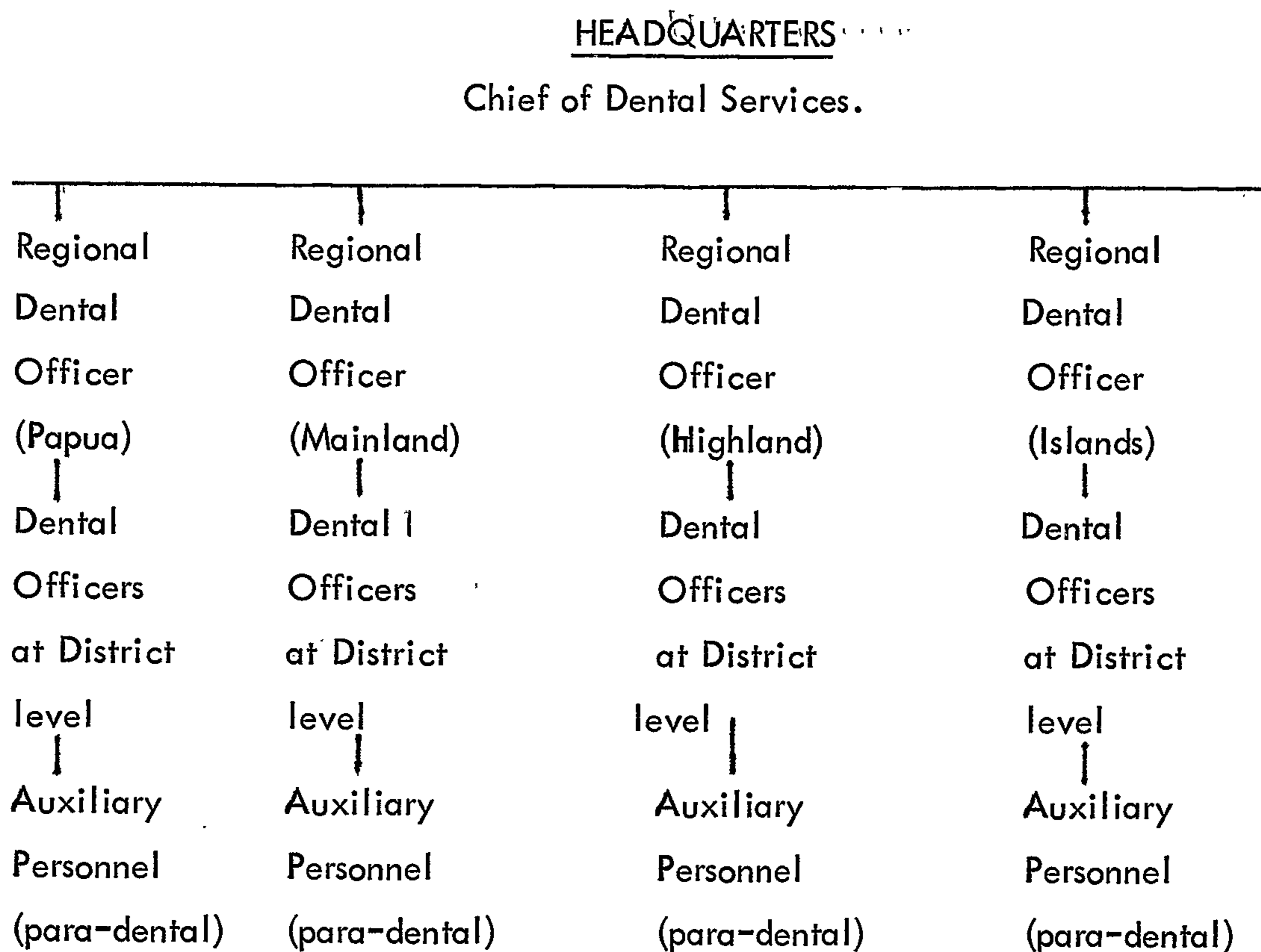
The Dental Health Service, having a current paucity of experienced

Dental Officers and with Regional Dental Officers responsible for the continuing education of new dental officer graduates from the Dental college during their two year residency period, still remains regionalised.

REGION	HEADQUARTERS	DISTRICT
Papua	Port Moresby	Western Gulf Central Miln Bay Northern
New Guinea Mainland	Lae	Morobe Madang East Sepik West Sepik
New Guinea Islands	Rabaul	East New Britain West New Britain New Ireland Bougainville Manus
Highlands	Goroka	Eastern Highlands Western Highlands Southern Highlands Chimbu

FIGURE 2

3.2 PRESENT ORGANISATIONAL CHART FOR DENTAL SERVICES  
(11)



3.3 Lines of Communication

On all matters, both of a technical nature and administration procedures, the lines of communication are through the O.I.C. of the station through the District Health Office (where applicable) to Headquarters. Those District and Regional Headquarters that have dental staff receive a copy of such correspondence.

Each station has an individual "line of communication" drawn up by the Regional Dental officer and District Dental Officer.

3.4 Duty statements for each category of dental personnel are as follows :

Designation of Position : Chief of Dental Services  
Responsible to : Assistant Director Community Health

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No. of Duty	Duties
1.	Plan, co-ordinate and direct the public Health Dental Service within the Territory and formulate dental health policy.
2.	Determine priorities for dental treatments.
3.	Develop and promote preventive programmes, and treatments services in private practices and Public Health Service to meet overall Territory dental needs.
4.	Determine Territory's needs for trained dental staff and ensure that appropriate courses are available to provide trained staff to meet these needs and determine pass standards.
5.	Draft dental legislation, advise Territory Medical Board on registration.
6.	Direct dental research and evaluation of services and dental health.
7.	Carry out other duties as directed consistent with the above.

Designation of Position: Principal Dental College  
Responsible to : Chief of Dental Services

No. of Duty	Duties
1.	Direct and control the administrative and professional functions of the Dental College.
2.	Within the framework of Departmental policy prepare curricula for all courses of dental training including <ul style="list-style-type: none"> <li>- Dental Officers</li> <li>- Dental Nurses</li> <li>- Dental Mechanics</li> <li>- Dental Orderlies</li> </ul>
3.	Advise Chief of Dental Service on course content and examination pass standards; set written examination papers and arrange formal and practical examinations.
4.	Undertake lecturing and instruction of training as necessary.
5.	Arrange for the clinical functions of the college and for the treatment of the public as required.
6.	Other duties as directed.

Local Designation : Regional Dental Officer  
Responsible to : Chief of Dental Services

No. of Duty	Duties
1.	Apply and direct the policy of the Dental Service within the Mainland geographical region and co-ordinate the implementation of the policy with the overall policies of the Department of Public Health.

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No. of Duty	Duties
2.	Direct all Dental Service personnel in their professional, clinical and administrative activities.
3.	Carry out regular inspections of dental establishments.
4.	Provide a professional consultative and advisory service at a high level for dental personnel and medical officers within the region.
5.	Undertake dental research and clinical duties as required.
6.	Other duties.

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Local Designation :

Lecturer

Responsible to :

Principal

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No. of Duty	Duties
1.	Conduct classes and examinations in specified subjects for Dentists, Dental Nurse, Dental Orderly and Dental Technician training.
2.	Prepare syllabi and content of specified subjects to correlate with the content of courses undertaken by other lecturers.
3.	Share in the supervision of all clinical subjects taught at the Dental College.
4.	Provide specialist and consultive services for the Territory in oral surgery or periodontics.
5.	Undertake administrative duties assigned by Principal.

Local Designation :

District Dental Officer

Responsible to :

Regional Dental Officer

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1. Within the framework of Dental Health Service policy provide a dental public health service within a District or larger specified area.
  2. Supervise the professional, technical and administrative of the dental staff within his area.
  3. Undertake periodic inspections to ensure that dental public health is being executed in accordance with established policy and standards.
  4. Provide a consultative service for District dental staff and maintain clinical services as necessary.
  5. Undertake research and evaluation in relation to dental public health problems as required.
  6. Other related duties as directed.

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L Local Designation :

Resident Dentist

Responsible to :

O.I.C. Dental Health Centre

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No. of Duty

Duties

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Under the direct supervision of a Dental Officer assist in :

- a) provision of dental treatment to patients throughout a defined area of the Territory.
- b) conduction dental health surveys throughout the area.
- c) implementing school and other dental health programmes and supervising and directing the activities of dental Assistants employed in the School Dental Health Programme.

No. of Duty	Duties
	d) as necessary providing statistical data on the incidence of dental disease and the effectiveness of remedial and preventive measures.
	e) supervising and training sub-ordinate staff
	f) performing associated clerical and administrative duties.
	g) carrying out other duties as directed consistent with the above.

Designation of Position :

Dental Therapist

Responsible to :

Dental Health Officer-in-Charge of the Clinic.

No. of Duty	Duties
1.	Maintain a Dental Health Clinic in a major centre by means of amalgam and silicate restorations; dental prophylaxis, simple extractions and dental health education.
2.	Undertake treatment for the community, at large consistent with training and resources, including school dental health service.
3.	Maintenance of dental treatment records and preparation of monthly returns.
4.	Supervise, direct, maintain discipline and be first point of referral for Dental Nurses and Dental Orderlies under his Control.
5.	Other related duties as directed.

Designation of Position : Dental Technician  
Responsible to : Dental Health Officer-In-Charge of the  
 Clinic.

No. of Duty	Duties
1.	Construct dental prosthesis as required.
2.	Carry out repairs, reline and remodel prosthesis as required.
3.	Prepare gold restorations, crowns and bridges. Simple splints as required.
4.	Prepare cast metal partial dentures as required.
5.	Care for and maintain stores and equipment as required.
6.	Maintain liaison in relation to touring arrangements, procurement of supplies, etc.
7.	Maintain monthly reporting system.
8.	Carry out other duties as directed consistent with the above.

No. of Designation of Position : Dental Orderly  
Responsible to : Officer-in-Charge of Clinic

No. of Duty	Duties
1.	Undertake dental orderly duties including : a) operate dental equipment in the provision of oral hygiene services. b) perform chairside duties c) maintain clinical records d) collection of dental fees e) carry out other duties as directed

### 3.5 Structure of the Dental Health Service (11)

With the development of the Community Health concept and being a division of health services intimately associated with the population at large, the dental health service is a part of the Community Health Division.

In the past and currently, the Dental Health Service embraces both the field service and the training school with the Principal of the Dental College being responsible to the Director of Public Health through the Chief of Dental Services.

This close affiliation between the academic and field components of the Service has been most fruitful in that the training of personnel is heavily biased towards their subsequent field duties.

It is believed that future developments will be that the training will become the responsibility of the University of Papua New Guinea within a combined Faculty of Medicine and Dentistry and thus move out from direct departmental control.

However, it is anticipated that the training school will not live and train its students in isolation, but maintain a close liaison with the Department of Public Health so that its graduates will be trained to fully serve the needs and demands of the community.

In the field at present, four Regional Dental Officer positions exist at Port Moresby, Lae, Goroka and Rabaul. There are also Dental Officer positions at Port Moresby, Lae, Goroka, Rabaul, Kieta, Samarai, Kavieng, Madang, Wewak, Milne Bay and Mendi.

Future planning is for at least one Dental Officer in each district centre (District Dental Officer) with provision for further Dental Officer appointments in the larger sub-district centres.

On his immediate staff the District Dental Officer may have a Dental Therapist, Dental Technician and one or more chairside assistants. He is also responsible for the Dental Therapists in his district whether they are located at one of the base centres or alone in smaller centres. Inspection of, consultation with, including on-site continuing education of the Therapist is an essential part of the District Dental Officer's responsibility, included in which, is treatment of patients referred by the Dental Therapist.

At Headquarters level there is extremely broad responsibility in all areas of dental development, viz. services, legislation, prevention, professional education, public education, development of private practice and research. At the area level, it is the policy of the Service to delegate as much responsibility in each sphere as possible, so that the Dental Officer will be free to exercise his initiative and creativity within the framework of the overall policy of the Service.

### 3.6 Present Dental Policy (7) (11)

The final goal of any Public Dental Health Service is optimal, dental health for the whole population, with adequate services available to ensure that each individual may preserve that enjoyable state without hardship.

Taking 1970 as the base year, long term goals - say 10 years - are comprised of the following :

- (a) School Dental Health Service - complete coverage of primary school children throughout the country.
- (b) Adult Services - sufficient manpower to satisfy demand, on the basis of a fairly comprehensive range of treatment and routine treatment for special groups.
- (c) Specialist Service - available in orthodontics, periodontics and oral surgery for both adults and children.

- (d) Preventive Dentistry - Fluoridation of all reticulated water supplies and firm practice of all other proven measures throughout the dental health service.
- (e) Professional education and development - in this country the dental health service must be built upon auxiliaries with chair-side and operating status and having an essential core of professionally trained Dental Officers. The latter must be capable of independent practice.
- (f) Firmly established dental auxiliary training of Dental Therapists and Dental Technicians, with numbers sufficient to reach school service goals.
- (g) Dental Health Education - firm practice of effective dental health education routines within the service and promotion of such practice outside the service.
- (h) Research - a sound basis for progress in basic and applied epidemiological studies, regular evaluation of services and surveillance of changing patterns

Medium (5 years) and short (2 years) range goals have been calibrated with each long range goal. Short range goals are not appropriate for listing here as they may vary from area to area, according to stage of development and must remain flexible to react to change of overall administration policy and resources.

The medium range goals from base 1970 are :-

- (a) To register 150,000 primary school children for treatment by the school service.
- (b) Provision of adult services to satisfy demand, but still with varying levels of treatment from pure relief of pain to a fairly comprehensive range. Provision of routine services at major hospitals, instructions.

- (c) All three specialist areas established, but subject to severe restrictions in geographical availability.
- (d) Fluoridation of all reticulated water supplies where practicable, routine topical application of fluorides in the school service, routine prophylaxis and tooth brush scheme.
- (e) Evaluation of dental health education procedures in schools, with routines laid down for Education Department and Dental Service staffs.
- (f) Establishment of a country centre for Dental Epidemiology.
- (g) Close co-operation with the other divisions of Community Health (for mutual benefit) leading to more efficient solving of overall community health problems.
- (h) The service is based on a team concept of dental auxiliaries working with and supervised by dental officers. Other than the priority groups, the service aims to provide some form of care for members of all sections of the community who seek it. The extent of coverage would be limited by accessibility of groups, funds and personnel. The operating auxiliary is the first point of contact for the patient. The service is neither designed nor intended to compete with private dental practice.
- (i) The ratio of field dental officers to field dental therapists is to be in range of one dental officer : 4 to 7, depending upon location and other factors.
- (j) To firmly establish retraining courses annually at the Port Moresby Dental College for selected field personnel.

3.7 The main items of present policy related to these goals are:

- (a) A district Dental Officer in each district centre with a dental officer in certain large sub-district centres.
- (b) School Dental Therapists to devote 90% of their duty hours to school dental service and only 10% to general treatment.
- (c) Conservative treatment, the school dental health service, preventive dental health measures (including dental health education) and promotion of private practice are the activities given most accent and priority in the Service.
- (d) District Dental Officers ensure that Service policy is carried out in a defined area. They accomplish this by regular tours of inspection, evaluation, special attention to problems peculiar to a specific area. They also fill a consultative role and should treat, or refer further, referrals from Dental Therapists. They must also carry on a system of continuing education for all auxiliary staff under their jurisdiction, by regular in-service training.
- (e) Policy approval covers a free preventive school dental service up to 15 years of age, and treatment on demand, with certain limitations, to other sections of the community.

These policies are subject to change and therefore maybe reviewed and implemented as the overall public health services structure and policies change.

## DENTAL SERVICES PLANNING AND ORGANISATION (12)

### 4.1 Government

A basic factor is that dental health services must be considered within the framework of basic general health services. This framework of basic health services is of vital importance. If it is weak then all health disciplines including dental, will have difficulty in providing even basic services. Thus the first priority of a health administration is to provide a sound basic health structure in the development of which there should be participation by the dental administrator. This principle of involvement of the dental executive in general health administrative procedure must be carried throughout all subsequent planning and development of the general health service at all levels. For example, the chief dental administrator should form a part of the central planning committee of the health department and this principle applied throughout the whole hierarchy of the field service in all areas or district health planning committees.

There is a need to provide government with information regarding dentistry generally and specifically regarding dentistry health services for the community at large.

Dental Health services and planners should be aware that differences exist in community demand for dental care as opposed to medical care. These differences can be related to a number of factors such as cost and aesthetics. The power of cost factor in affecting demand and provision of services is common to all communities, but in developing populations a factor such as regard for personal appearance may change rapidly and exert a strong effect on demands.

In designing and implementing dental programmes the scarce resources of manpower and finance must be utilised as effectively as possible. This implies that government must provide efficient working conditions, and for their part health workers should be aware of the cost of dental health services and encouraged to use resources economically.

Dental Health programmes must have an emphasis on prevention and the promotion of oral health with the involvement of the patients both as individuals and as members of the community.

Many programmes at present involve captive groups, particularly school children, who receive incremental services. As resources permit, other captive groups can be included in the programme. The community at large requires relief from pain and oral conditions inimical to their general health and well-being, and if practicable, incremental care on demand. Services for schools will, in some countries, be provided by private practitioners and in others by both private and government services. Government services for adults need not necessarily be free of charge.

In the provision of dental health services, particularly in rural areas, it should be realised that the community relates to the general health services provided and seeks attention at rural health centres or hospitals. Dental services should be provided in these situations, either by the full time attendance of dental workers at the larger centres or hospitals or by attendance at regular intervals by personnel mainly concerned with the provision of school health services.

There should be close liaison and co-operation between dental health workers and other health workers in health centres and hospitals. Dental personnel, particularly the professionals, should be educated to be able to work with other health workers.

#### 4.2 Private<sup>(8) (12)</sup>

A resource which must not be forgotten in the planning of public health programmes is the Private dental practitioners. Every attempt must be made to gain the interest and the co-operation of the private practitioners in community dental health problems. In countries, particularly those relying on private practitioners for the provision of services, every endeavour should be made by the governmental agencies to involve them in community health planning and health education activities.

The private practitioners should become members of a district health committee whereby they should take part in planning of dental health services in that district. For a provision of treatment services they should also treat school children and lower income earners and charge lower fees than what they normally charge. They should be encouraged to provide more preventive services such as topical application on children and give dental health education to their patients.

In order to make the most effective use of the facilities and expenditure for the training programmes, every opportunity should be taken to involve suitable private practitioners in teaching.

## SUMMARY AND CONCLUSION

Rural communities, usually with low prevalence of dental caries, high prevalence of periodontal disease and no malocclusion problems are slowly becoming urbanised and drifting away from their traditional diet patterns; consequently showing increase in dental caries prevalence. The prevalence of periodontal disease is already higher than average, but is unlikely to increase with more urbanisation and diet changes. The prevalence of malocclusion is likely to increase as the result of urbanisation and racial inter-marriage. Thus the effects of social changes among the indigenous people are potentially harmful in two major areas of dental diseases. (2)

The effective application of the principles of controlling and preventing dental diseases in the country is difficult because of : terrain, poor communication, climate, lack of resources such as manpower, money equipment, and the apathy of the people towards dental health. However the country at present is characterised by continuous improvement in health education and economic development and obviously these will overcome the problems facing the dental health services at present.

The country has plans to extend both the education of dental personnel and the provision of services. The education of the dental personnel, dental officers and several types of auxiliaries, is now carried out in the country. Proposed intake of students should overcome the present dental manpower shortage. With increase in dental manpower the provision of dental services will cover larger school and adult populations. There will be more manpower available for curative, promotive and preventive services and less restrictions on comprehensive dental care services for adult population as at present.

In the organisation of dental health services, the Chief of Dental Services is the overall director and administrator. He forms part of the central health planning committee at the Headquarter level. Therefore in drawing up the structure and policies of the Dental Health Service by the central health planning committee, he makes sure that these are considered within the total basic health framework of the Department of Health. The present dental health structure and policies are being considered within this framework to meet the needs and demands of the community and in the light of the resources available in the country.

Available time precludes the Chief of Dental Services from visiting every individual station and personnel in the field and he has deligated some of his duties to Regional and District Dental Officers. An organisation chart has been drawn up to differentiate categories of dental personnel with their clearly stated duties whereby Regional and District Dental Officers carry out some administrative and directive duties.

At present the interest and the co-operation of the private practitioners have not yet been gained in community dental health problems. However, it is the intention of the Department of Health to involve certain suitable private practitioners as part-time teaching staff. It is also intended that mission services be integrated and rationalised within the total dental health service.

## REFERENCES

- (1) Anderson, D.A. - Dental Services; Department of Public Health Annual Report, 1972
- (2) Barnes, D.E. - Dental Health; Papua New Guinea Encyclopaedia Vol. 2 1972 (pg. 243-246)
- (3) Barnes, P.B. - Dental College, Papua New Guinea Encyclopaedia Vol. 2 1972 (pg. 254)
- (4) Dental Charges Ordinance, PNG, 1969, No. 67 of 1969
- (5) Department of External Territories - Compendium of Statistics for Papua New Guinea, June 1972
- (6) Gris, G.B. - Dental Services Report, 1973
- (7) Policy Document - Dental Services, PNG, DOC Ref. 117/9/'72
- (8) Expert Committee Report - Review of Dental Education and Training in Papua New Guinea, June 1972
- (9) Joint PNG Government/SPC Seminar Report - Dental Health Services Development and Co-operation in the Pacific (3rd - 14th June, 1968)
- (10) Symes, W.D. - Preventive Medicine, Papua New Guinea Encyclopaedia, Vol. 1 1972 (pgs. 971-977)
- (11) Public Health Department - The Dental Health Services Handbook
- (12) Report on the Third Joint WHO/SPC Seminar - Dental Health Services; Noumea, (26th January - 2nd February) 1971.