

PROVINCE OF BRITISH COLUMBIA

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Sixty-ninth Annual Report of the  
**Public Health Services  
of British Columbia**

HEALTH BRANCH  
DEPARTMENT OF HEALTH SERVICES AND HOSPITAL INSURANCE

YEAR ENDED DECEMBER 31

1965



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Public Health Services  
of British Columbia

Health Services  
Department of Health, Education and Welfare

1974

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OFFICE OF THE MINISTER OF HEALTH SERVICES  
AND HOSPITAL INSURANCE,

VICTORIA, B.C., January 28, 1966.

*To Major-General the Honourable GEORGE RANDOLPH PEARKES,  
V.C., P.C., C.B., D.S.O., M.C.,  
Lieutenant-Governor of the Province of British Columbia.*

MAY IT PLEASE YOUR HONOUR:

The undersigned respectfully submits the Sixty-ninth Annual Report of the Public Health Services of British Columbia for the year ended December 31, 1965.

ERIC MARTIN,  
*Minister of Health Services and Hospital Insurance.*

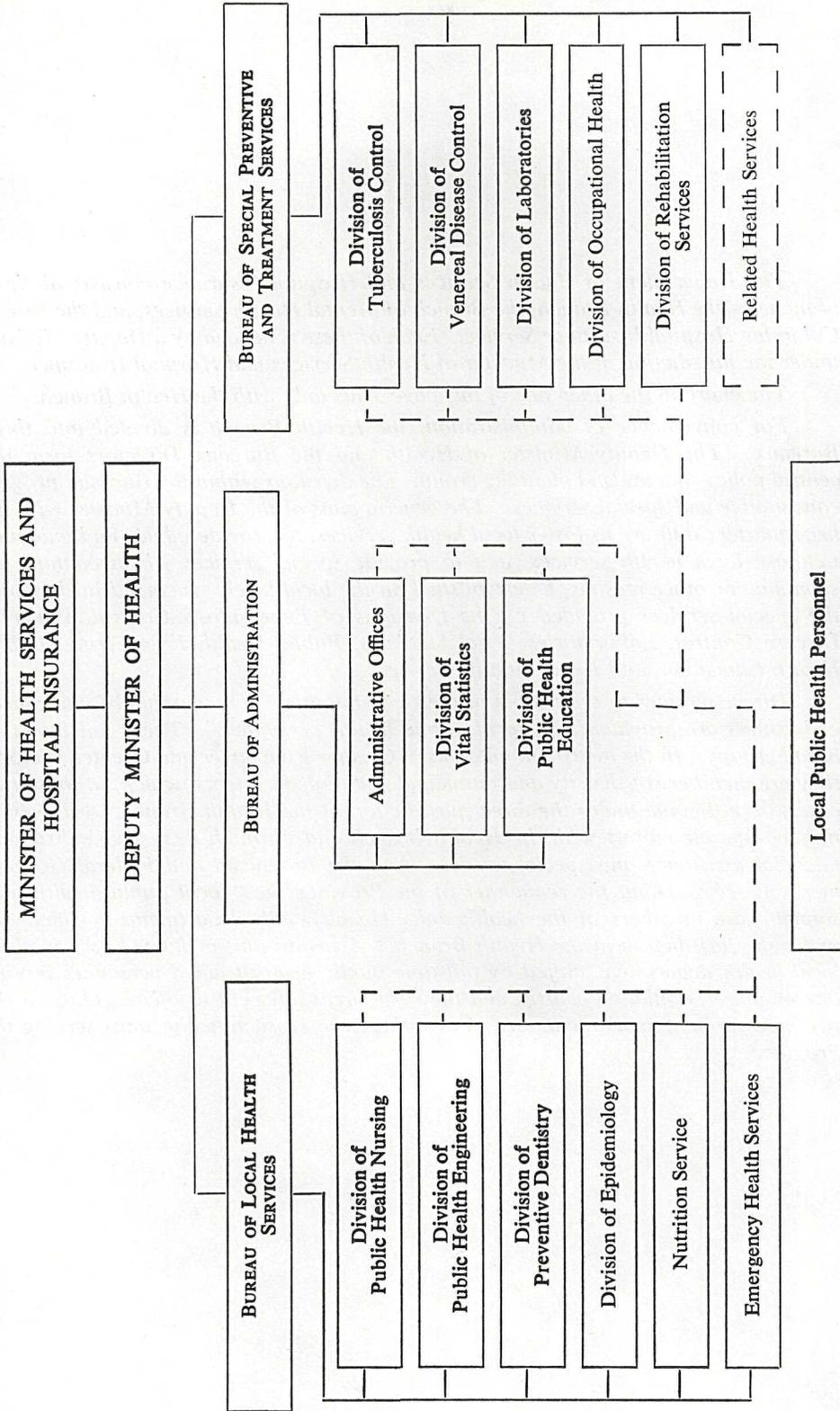
DEPARTMENT OF HEALTH SERVICES AND HOSPITAL INSURANCE  
(HEALTH BRANCH),  
VICTORIA, B.C., January 7, 1966.

*The Honourable Eric Martin,  
Minister of Health Services and Hospital Insurance,  
Victoria, B.C.*

SIR,—I have the honour to submit the Sixty-ninth Annual Report of the Public Health Services of British Columbia for the year ended December 31, 1965.

J. A. TAYLOR, B.A., M.D., D.P.H.,  
*Deputy Minister of Health.*

# HEALTH BRANCH ORGANIZATION



*The Department of Health Services and Hospital Insurance consists of three branches—the Health Branch, the Branch of Mental Health Services, and the British Columbia Hospital Insurance Service. Each of these is headed by a Deputy Minister under the jurisdiction of the Minister of Health Services and Hospital Insurance.*

*The chart on the other side of this page deals only with the Health Branch.*

*For convenience of administration, the Health Branch is divided into three Bureaux. The Deputy Minister of Health and the Bureaux Directors form the central policy-making and planning group. The divisions within the Bureaux provide consultative and special services. The general aims of the Deputy Minister with his headquarters staff are to foster local health services, to provide advice and guidance to those local health services, and to provide special services which cannot, for economic or other reasons, be established on the local level. Included in these are the special services provided by the Divisions of Tuberculosis Control, Venereal Disease Control, Laboratories, Vital Statistics, Public Health Engineering, Public Health Education, and Rehabilitation Services.*

*Direct services to the people in their communities, homes, schools, and places of business are provided by "local public health personnel." These fall into two broad groups. In the metropolitan areas of Greater Vancouver and Greater Victoria they are members of the city and municipal health departments, which, in these two cases, do not come under the direct jurisdiction of the Health Branch. (However, they co-operate closely with the Health Branch and, through it, receive substantial financial assistance and special services from the Provincial and Federal Governments.) Throughout the remainder of the Province the "local public health personnel" are members of the health units (local health departments), which are under the jurisdiction of the Health Branch. A health unit is defined as a modern local health department staffed by full-time public health trained personnel serving one or more population centres and the rural areas adjacent to them. Outside the two metropolitan areas mentioned above, there are 18 such health units serving the Province.*

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# Sixty-ninth Annual Report of the Public Health Services of British Columbia

## HEALTH BRANCH

DEPARTMENT OF HEALTH SERVICES AND HOSPITAL INSURANCE

YEAR ENDED DECEMBER 31, 1965

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This is the Sixty-ninth Annual Report of the Health Branch within the Department of Health Services and Hospital Insurance. Outlines of the activities and services provided are contained in the specific reports of the Bureaux and Divisions, but some of the highlights are:—

- The POPULATION of the Province continues to increase to a mid-year estimate of 1,789,000 people, an additional 51,000 over the 1964 figure.

- The BIRTH RATE at 18.8 per 1,000 population continued to decline from the peak rate of 26.1 recorded in 1957. The lowest rate was that of 13.4 in 1933.

- The MARRIAGE RATE increased slightly to 7.4 per 1,000 population. The peak marriage rate was established in 1942 at 12.5 per 1,000 population.

- The DEATH RATE at 8.5 per 1,000 population is the lowest on record within the past 40 years. Associated with this is the fact that the rates for the three leading causes of death—heart disease, cancer, and cerebrovascular accidents—are also the lowest for many years.

- The INFANT MORTALITY RATE dropped to 20.2 per 1,000 live births to rank among the low rates of the world.

- The MATERNAL DEATH RATE at 0.3 per 1,000 live births slightly exceeded last year's record low of 0.1.

- The ACCIDENTAL DEATH RATE was at its highest since 1956. The rate was 71.6 per 1,000 population in 1965. About one-half, 46 per cent, involved accidents due to motor-vehicles, water transport, and aircraft, a substantial increase over previous years.

- TUBERCULOSIS has become a disease of the older person, as is evidenced by the fact that only 42 of the 161 patients in sanatorium were under 50 years of age. Ten per cent are actually over 70 years of age.

- In addition to the sanatorium patients, there are approximately 1,000 cases of TUBERCULOSIS on out-patient therapy throughout the Province.

- From about 132,000 persons X-rayed in community surveys, 115 cases of TUBERCULOSIS were found and approximately 400 others had some scarring of the lungs due to tuberculous infection. Significantly 929 cases of other abnormalities of heart or lung were revealed.

- The availability of beds in the Pearson Hospital permitted the closure of the MARPOLE and ALLCO INFIRMARIES and the placement of 112 patients in continuing-care wards at that hospital.

- The REGISTRY FOR HANDICAPPED CHILDREN and ADULTS contains information on 29,000 handicapped persons, which, while providing for remedial attention to these patients, is of significant value in specific studies into factors creating handicap conditions.

- REHABILITATION SERVICES are gradually becoming expanded to handicapped persons to promote their absorption into normal social or productive pursuits. Service was provided to 795 persons during the year.

- A decrease of 41 per cent in the incidence of INFECTIOUS SYPHILIS, from 304 cases in 1964 to 178 cases in 1965, would seem to indicate that a concentrated programme in venereal disease control is producing results in this area of sexually transmitted infection.

- GONORRHOEA, however, continues to increase, with a 6-per-cent gain over the previous year, 6,146 cases in 1965 compared with 5,816 cases in 1964.

- The introduction of regulations to the PRACTICAL NURSES ACT has permitted the licensing of practical nurses, and of the applications received, 247 have been reviewed and approved by the Credentials Committee.

- PUBLIC HEALTH INSPECTORS, in conjunction with the Department of Labour, have been designated as Factory Inspectors under the *Factories Act* and will add this to the duties performed in assessment of community environment affecting industrial employees.

- AIR POLLUTION studies are being pursued to determine effects of industrial air pollutants on human health.

- Technical surveys are being developed in surveillance of exposures to all forms of ionizing RADIATION in medical, dental, and industrial fields, including use of X-rays and radiation isotopes.

- Observations into human exposures to PESTICIDES continue as new studies are undertaken to determine the effects involving handlers and sprayers most frequently exposed to such products.

- Public health education has engaged in modifications of HEALTH-TEACHING in schools aimed at a theme of man rather than health.

- There were 2,143 patients admitted to treatment in the clinics operated by the BRITISH COLUMBIA CANCER FOUNDATION.

- REHABILITATION services were given to 261 patients in the G. F. Strong Rehabilitation Centre, of which 104 were severely handicapped; 50 per cent of this latter group were retrained to complete ability.

- There are 533 patients with MULTIPLE SCLEROSIS registered with the Multiple Sclerosis Society, an increase of 83 during the year.

- During this year 6,000 patients with ARTHRITIS were referred to the Canadian Arthritis and Rheumatism Society for consultation or treatment.

- The British Columbia Epilepsy Society is endeavouring to assist the needs of many EPILEPSY citizens throughout the Province.

- The British Columbia Cystic Fibrosis Foundation is working toward the development of a CYSTIC FIBROSIS clinic to aid children afflicted with this disease.

- For the first time PREVENTIVE DENTAL SERVICES became available to children 3 years of age, at no direct cost to their parents, to reduce their need for dental treatment in later years.

- The Province was again exempt from either DIPHTHERIA or POLIO-MYELITIS. This is an indicator of the healthful results of an active immunization programme which involved nearly half a million individual treatments.

- HOME CARE nursing services have been extended to new areas of the Province and are now available to 92 per cent of the population.

- The public health nurse has become increasingly involved in community MENTAL HEALTH services in home visits to psychiatric patients and mental retardates.

- A greater number of public water systems and sewerage works were proposed during the year, requiring review of the plans by PUBLIC HEALTH ENGINEERS.

- The bacteriological quality of SHELL FISH growing waters received intensive attention, which, in association with environmental surveys of the areas, determines their safety as a food product.

- In association with the Motor-vehicle Branch, studies are being maintained and developed into the relationship between physical disabilities and MOTOR-VEHICLE ACCIDENTS.

- Considerable attention is focused upon EMERGENCY HEALTH services, particularly with regard to repositioning of emergency medical and hospital units and training of personnel.

The following pages go into detail on these and other items that reflect the programmes and services of the Health Branch during 1965.

## REPORT OF THE BUREAU OF ADMINISTRATION

A. H. CAMERON, DIRECTOR

The Bureau of Administration consists of

- the general offices in Health Branch headquarters,
- the Division of Vital Statistics,
- the Division of Public Health Education.

Two important staff changes took place in the Bureau during the year.

Mr. J. H. Doughty, Director of Vital Statistics, was granted a two-year leave of absence to accept an appointment with the Ford Foundation. Mr. Doughty left in the late summer for New Delhi, India, to serve as a Programme Consultant in Statistics to several Government of India Agencies. Mr. W. D. Burrowes was appointed Acting Director of Vital Statistics during Mr. Doughty's absence.

Mr. R. H. Goodacre, Director of Public Health Education, resigned in August to accept an appointment with the Department of National Health and Welfare as a Consultant in Medical Sociology. Miss Hilary Castle was appointed to the position of Director replacing Mr. Goodacre.

Both Mr. Doughty and Mr. Goodacre had been with the Health Branch for many years, and their services and counsel will be missed.

The Directors of Vital Statistics and Public Health Education have prepared reports which appear elsewhere in this volume.

This report of the Bureau as a whole deals with administrative and organizational matters relating to the Health Branch's operations generally.

### ORGANIZATION AND STAFF

The following table shows the various parts (divisions, offices, clinics, etc.) of the Health Branch with their locations and the approximate numbers of persons employed at the end of the year:—

Health Branch headquarters (Victoria), Legislative Buildings, Victoria..	43	
Health Branch office (Vancouver), 828 West Tenth Avenue, Vancouver	36	
		79
Division of Vital Statistics—		
Headquarters and Victoria office, Legislative Buildings, Victoria.....	64	
Vancouver office, 828 West Tenth Avenue, Vancouver.....	18	
		82
Division of Tuberculosis Control—		
Headquarters, 2647 Willow Street, Vancouver.....	16	
Willow Chest Centre, 2647 Willow Street, Vancouver.....	123	
Pearson Hospital, 700 West 57th Avenue, Vancouver.....	258	
Victoria and Island Chest Clinic, 1902 Fort Street, Victoria.....	11	
New Westminster Chest Clinic, Sixth and Carnarvon, New Westminster.....	7	
Travelling Clinics, 2647 Willow Street, Vancouver.....	13	
Survey programme, 2647 Willow Street, Vancouver.....	6	
		434
Division of Laboratories—		
Headquarters and Vancouver Laboratory, 828 West Tenth Avenue, Vancouver.....	78	
Nelson Branch Laboratory, Kootenay Lake General Hospital.....	1	
Victoria Branch Laboratory, Royal Jubilee Hospital <sup>1</sup> .....		
		79

<sup>1</sup> Services are purchased from the Royal Jubilee Hospital, which uses its own staff to perform the tests.

Division of Venereal Disease Control—	
Headquarters and Vancouver clinic, 828 West Tenth Avenue, Vancouver.....	19
Victoria clinic, 2345 Richmond Avenue, Victoria.....	1
New Westminster clinic, 537 Carnarvon Street, New Westminster.....	1
	21
Local Public Health Services—	
Health units—	
East Kootenay, Cranbrook.....	23
Selkirk, Nelson.....	13
West Kootenay, Trail.....	19
North Okanagan, Vernon.....	21
South Okanagan, Kelowna.....	35
South Central, Kamloops.....	26
Upper Fraser Valley, Chilliwack.....	24
Central Fraser, Mission.....	22
Boundary, Cloverdale.....	46
Simon Fraser, New Westminster.....	27
Coast Garibaldi, Powell River.....	14
Saanich and South Vancouver Island, 780 Vernon Avenue, Victoria.....	37
Central Vancouver Island, Nanaimo.....	44
Upper Island, Courtenay.....	20
Cariboo, Williams Lake.....	14
Skeena, Prince Rupert.....	18
Peace River, Dawson Creek.....	19
Northern Interior, Prince George.....	28
Nursing district—Telegraph Creek.....	1
	451
Total.....	1,146

The total number, 1,146, was 41 more than that reported at the end of 1964. Most of the increase occurred in Local Public Health Services, where modest additions to the staffs of several health units were required to keep pace with the increasing population.

There were also part-time employees in many of the places listed. These totalled the equivalent of 62 full-time employees

### TRAINING

During 1965, 16 Health Branch employees completed postgraduate training and 16 commenced such training, usually leading to a diploma or master's degree in one of the public health specialties. Part of the costs were borne by National Health Grants. In accordance with the usual policy, the trainees were required to sign agreements to serve with the Health Branch for specified periods following completion of their courses.

The types of training, universities or other training centres (in parentheses), and numbers trained were as follows:—

Completed training—	
Diploma in Public Health Nursing (British Columbia, 10; McGill, 1; Western Ontario, 1).....	12
Nursing Supervision and Administration (Toronto).....	1
Diploma in Public Health (Toronto).....	2
Master of Public Health Nursing (Pittsburgh).....	1
Total.....	16

## Commenced training—

Diploma in Public Health Nursing (British Columbia, 10; Alberta, 1; Western Ontario, 1) .....	12
Nursing Supervision and Administration (Toronto) .....	1
Diploma in Public Health (Toronto) .....	1
Master of Public Health Nursing (California) .....	1
Master of Public Health Dentistry (Michigan) .....	1
Special Training in Public Health (British Columbia) .....	1
Total .....	17

In addition, it was again possible to provide some members of the Health Branch staff with shorter courses of training. Here again National Health Grants helped defray the costs. The courses and numbers attending were as follows:—

## Short-term training—

Medical Health Officers Refresher Course (University of British Columbia) .....	18
Public Health Refresher Course (University of Toronto) .....	4
Environmental Health Hazards (University of British Columbia) .....	1
Venereal Disease Control (Portland) .....	1
Nursing Supervision and Administration (University of California) .....	1
Communicable Disease Workshop (Seattle) .....	1
Efficiency in Dentistry (University of Washington) .....	1
Practical Therapeutics (University of British Columbia) .....	1
Psychiatric Nursing Affiliation (Provincial Mental Hospital, Coquitlam, and The Woodlands School, Burnaby) .....	12
Total .....	40

Training for the field staff in general was again provided by the Public Health Institute which was held at the University of British Columbia in May.

## ACCOMMODATION

There were several important developments during the year.

*In Victoria.*—The stockrooms and related services of Health Branch headquarters and the Division of Vital Statistics were transferred to much better quarters in the former “Mc & Mc” Building on Government Street.

The Division of Public Health Education, including the Health Branch library, was transferred to a renovated house on Superior Street.

These moves permitted the vacated space in the extreme West Wing of the Legislative Buildings to be renovated and used as much-needed offices by the Division of Public Health Engineering and the Division of Vital Statistics.

*In Vancouver.*—At Pearson Hospital an “activities wing” was nearly completed by the year’s end. Its purpose will be to assist in the reactivation and rehabilitative processes for the long-term patients of the Provincial Auxiliary Hospital (formerly the Provincial Infirmary) which had been incorporated with Pearson Hospital.

At the Willow Chest Centre, plans were nearly completed to convert a major operating-room and supporting facilities to use for heart surgery.

*In Local Health Services.*—Throughout the Province, five community health centres were constructed.

## ACCIDENT PREVENTION

During 1964 the “12-month rolling averages” had remained below 10 disabling injuries per million man-hours and had dropped below eight in some months. The rates increased during the first eight months of 1965, climbing as high as 13.8

for August. Most of these time-loss accidents were of a minor nature and occurred in one section of the Health Branch. Efforts are being continued to improve the situation there.

During the year the following awards of merit were received:—

Silver Certificate Award: To General Administration (Health Branch headquarters, Division of Vital Statistics, Division of Venereal Disease Control, and the Division of Laboratories), for 834,736 man-hours worked without a reportable injury during the period April 1, 1963, to December 31, 1964.

Bronze Certificate Award: To Local Health Services (the health units throughout the Province), for 636,321 consecutive man-hours of work without a reportable injury during the period August 1, 1964, to April 30, 1965.

### LICENSING OF PRACTICAL NURSES

The regulations under the *Practical Nurses Act* were approved by Order in Council No. 3434 on December 8, 1964. The Council of Practical Nurses, for which provision is made within section 4 of the *Practical Nurses Act*, was appointed by Order in Council No. 477 on February 19, 1965. In accordance with the Act, the 10 appointees were nominated by the following:—

- (a) Minister of Health Services and Hospital Insurance—two members, the Chairman and Vice-Chairman (the Health Branch's Director of Administration was appointed Chairman).
- (b) College of Physicians and Surgeons of British Columbia—one member.
- (c) Registered Nurses' Association of British Columbia—two members.
- (d) Minister of Education—one member.
- (e) British Columbia Hospitals' Association—one member.
- (f) Licensed Practical Nurses' Association—three members.

Preliminary planning was undertaken immediately by the Chairman, and the first formal meeting of the Council was held on March 15, 1965. During the year there were six formal meetings of the Council as a whole as well as numerous meetings of sub-committees.

The earlier meetings were concerned with the "mechanics" of the licensing programme — establishing procedures, devising and printing forms, selecting and appointing a Registrar, arranging for office space, equipment, and supplies, etc. The Registrar took up her duties on September 1, 1965, in an office in the Provincial Health Building at 828 West Tenth Avenue, Vancouver, B.C.

About the middle of September, the licensing programme was publicized by announcements stating that the Registrar would receive applications for licensing. Applications began to arrive in the office of the Registrar almost immediately.

All applications must be reviewed and documented by the Registrar, examined by the Council's officially appointed Committee on Credentials which makes its recommendations to the Council, and, if acceptable, finally approved by the Council.

Of the applications received by the Registrar to the end of the year, the Committee on Credentials reviewed and approved 247 and planned to review others in the new year. The granting of final approval by the Council and issuance of licences by the Registrar were taking place as rapidly as possible.

## REPORT OF THE DIVISION OF VITAL STATISTICS

The responsibilities of the Division of Vital Statistics fall into two broad categories—one relating to the operation of the civil registration system, the other to the provision of a centralized biostatistical service to the Health Branch, the Mental Health Services Branch, and to other health agencies. Included in the former is the administration of the *Vital Statistics Act*, the *Marriage Act*, the *Change of Name Act*, and certain sections of the *Wills Act*.

### REGISTRATION SERVICES

#### VITAL STATISTICS ACT

A very substantial part of the Division's responsibilities arises from the administration of the *Vital Statistics Act*, which governs the registration of births, stillbirths, marriages, deaths, adoptions, and divorces, and the issuance of information and certificates based on registrations filed.

During 1965 excellent co-operation was again received from hospitals in the submission of monthly returns of births, and also in the completion of non-medical items on the Physician's Notice of Birth. Very good relations were also enjoyed with the legal profession, funeral directors, government and semi-government organizations, and the general public.

The revised form of the Physician's Notice of Live Birth or Stillbirth came into use at the beginning of the year. Those responsible for completing the forms have coped very successfully with the changes incorporated in the new form.

There has been a significant increase in the number of requests by official bodies for free searches, especially by the Child Welfare Division. The number of paid searches also continued to increase.

There was a decrease of over 3,700 in the number of birth registrations, resulting from the accelerated decline of birth rates in this Province, which is common to other Provinces. The number of death registrations decreased by nearly 1,000, while marriage registrations increased by a similar amount.

#### MARRIAGE ACT

The *Marriage Act* prescribes the legal requirements which must be observed in connection with the solemnization of marriage, the legal qualifications of the parties, and the authorization of ministers and clergymen and of Marriage Commissioners to perform the marriage ceremony. The actual registration of marriages solemnized and the issue of marriage certificates are governed by the *Vital Statistics Act*. There were about 2,250 ministers and clergymen, representing some 140 autonomous religious bodies, authorized to solemnize marriages in 1965.

#### CHANGE OF NAME ACT

The *Change of Name Act* provides the means whereby persons may change their given names or their surnames upon meeting certain requirements stated in the Act. There was little change in the number of legal changes of name effected.

#### REGISTRY OF WILLS NOTICES

The Registry of Wills Notices maintained by this Division under the *Wills Act* makes it possible for a testator to file with this Division a notice stating that he has executed a will and indicating where the will is deposited. The filing of a wills notice

is not mandatory, but provides a convenient means of ensuring that information which will lead to the discovery of the wills should be readily available after death. The number of new wills notices filed in 1965 was about 11,200, as compared with 11,475 in 1964.

#### VOLUME OF REGISTRATIONS AND CERTIFICATIONS

The volume of registrations received in 1965 was about 4 per cent below that for 1964, due mainly to an acceleration of the recent decline in births. The number of certificates issued was 3 per cent higher than in 1964. Revenue collected by the Central Office increased by about 2 per cent over 1964. Preliminary estimates of the volume of registrations and other services rendered by the Division in 1965 are as follows:—

Registrations accepted—	
Birth registrations .....	33,679
Death registrations .....	15,252
Marriage registrations .....	13,280
Stillbirth registrations .....	442
Adoption orders .....	2,241
Divorce orders .....	1,898
Delayed registrations of birth .....	422
Wills notices .....	11,185
	78,399
Legal change of name .....	519
Legitimations of birth .....	176
Alterations of given name .....	243
Certificates issued—	
Birth certificates .....	55,731
Death certificates .....	9,134
Marriage certificates .....	6,034
Baptismal certificates .....	12
Change of name certificates .....	718
Divorce certificates .....	332
Photographic copies of registrations .....	10,472
	82,433
Searches of wills notices .....	8,849
Non-revenue searches for Government departments .....	12,383
Central Office revenue .....	\$104,711

#### STATISTICAL SERVICES

During the year an arrangement was concluded with the Dominion Bureau of Statistics, Ottawa, whereby this Division undertook to provide the Bureau, on an equal cost-sharing basis, with copies of the punch cards derived from registrations of British Columbia vital events. Formerly the Bureau itself had undertaken the punching of cards from microfilm records received from this Division.

Within the Province the Division gave statistical services in the following fields:—

*Cancer Control.*—Preparation of punch cards and tabulations for the British Columbia Cancer Foundation; co-operation in three studies undertaken by members of the Foundation; analyses of data relating to the cytology programme.

*Dental Health.*—Analyses and publication of data relating to the fifth dental health survey; analyses of data relating to studies on the effects of supervised tooth-

brushing with fluoride solutions; collaboration in the design and evaluation of community dental health knowledge in the Kootenays.

*Tuberculosis Control.*—Assistance in connection with medical research studies and preparation of plans for processing of annual statistics.

*Public Health Inspection.*—Statistical services to the Consultant Public Health Inspector in connection with testing of swimming-pools in the Province and development of a sanitation rating for eating-places.

*Mental Health Services.*—Revision of statistical forms and procedures relating to mental health institutions and preparations of tables for annual report.

*B.C. Government Employees Medical Services.*—Tabulation and publication of annual statistics and discussion of new proposals affecting the collection and processing of data.

*Venereal Disease Control.*—Recommendations for revising the system of records and the form of annual report.

*Public Health Nursing.*—Statistical services in connection with patient-progress study and with a study of mental health patients.

*Medical Faculty, University of British Columbia.*—Statistical services in connection with a study of deaths from emphysema, a study of obstetrical discharges at four hospitals, and a study of neurological development of the newborn infant.

*G. F. Strong Rehabilitation Centre.*—Revision of present records, codes, definitions, and preparation of tables for annual report.

*Perinatal Morbidity and Mortality.*—The Division was represented on an advisory committee appointed to undertake a study of perinatal morbidity and mortality under the ægis of the British Columbia College of Physicians and Surgeons.

*Registry for Handicapped Children and Adults.*—Approximately 29,000 persons were registered in 1965, compared with 26,000 in 1964. During the year, members of the Registry staff addressed meetings of each health unit in the Vancouver metropolitan area and informed them of the work that is being done by the Registry. The observed increase in registrations may be partly due to greater awareness of these operations.

The Child Care Committee of the British Columbia Division of the Canadian Medical Association expressed concern that the medical profession was not adequately informed of the work of the Registry. To meet this complaint, a meeting was arranged between Registry personnel and the Child Care Committee. As a result, it was proposed that contact with physicians, individually and collectively, should be intensified by means of journal articles, displays, and discussions with individual physicians. Following the meeting, all physicians in Vancouver were circularized as proposed. Many physicians have subsequently registered at least one case and several have written requesting further copies of registration forms. Arrangements have been made for an article to appear in the British Columbia Medical Journal in which the uses of material furnished by the Registry will be discussed.

During the year clerical procedures were developed for compiling a register of children with congenital anomalies within the general organization of the Registry. The methods worked out were described in detail in a procedure manual which was completed in December. The etiological code devised by the medical and genetic consultants to the Registry was brought into use at the beginning of the year in order to provide an adequate classification for congenital anomalies.

There has been a notable increase in the number of requests for Registry data received from members of the medical profession during this year.

As a result of discussions regarding the future of cancer notification, it was decided that this work should be taken over by the staff of the Registry, with a view to establishing a cancer registry on similar lines to the existing registries.

## REPORT OF THE DIVISION OF PUBLIC HEALTH EDUCATION

The programme of the Division remained basically unchanged from previous years, providing service to public health field staff and other divisions of the Health Branch.

### STAFF

At the close of the year the Division was staffed by the Director, a consultant specializing in school health education, and a public health education assistant whose specialty is photography and other audio-visual aids and written material. The professional vacancy created by the appointment of the consultant to the Director's position was advertised in the anticipation that a health education trainee will be secured early in the new year.

There is still a vacancy for a professional health educator with the Greater Victoria Metropolitan Board of Health, but the position with the Greater Vancouver Metropolitan Health Service is filled by Mr. Alex Buller, as it has been for the past two years.

### SCHOOL HEALTH EDUCATION

The Division's role in this aspect of health education continued under the guidance of the Consultant in School Health Education in the three main areas of (1) preparation of experimental materials; (2) preliminary work toward teacher preparation for health teaching, and (3) consultative services to public health field staff.

With the assistance of National Health Grants and the co-operation of the Department of Education, it was possible to conduct a trial of a number of experimental teaching units. The units, complete with appropriate references and audio-visual materials, were made available to the elementary schools of the Powell River School District. Preparation of this material involved a completely new approach to health teaching in that the underlying theme is *man* rather than *health*. The object was to develop a foundation of knowledge in the elementary grades on which a sound programme for the secondary grades could be built. Assessment of teacher opinion of this new approach will take place at the end of the school-year, and, if present indications of their approval are supported in the final evaluation, it is hoped that the units will be used in additional areas in the coming year. This special project in Powell River was the most important part of the Division's participation in school health education.

In the second area, that of teacher preparation, the Consultant in School Health Education acted as recorder for a recently established steering committee whose members are from the Health Branch, the Department of Education, the Faculties of Education of the three universities, and the British Columbia Division of the Canadian Medical Association. One of the main goals of the committee is to increase emphasis on, and raise the level of instruction being given to, student teachers. In addition, in the teacher-training programmes of the Faculty of Education at the University of Victoria, the experimental teaching units developed for Powell River, as well as the health knowledge test developed last year, were utilized.

Consultant service to public health field staff involved the Consultant in School Health Education in a heavy correspondence and in numerous visits to health unit areas.

## AUDIO-VISUAL AIDS AND WRITTEN MATERIALS

## FILM LIBRARY SERVICE

The film library recorded a 9-per-cent increase in the number of confirmed bookings compared with the previous year. It will probably be desirable to increase our film holdings if the requests from teachers are to be met.

The following shows the number of films and filmstrips previewed and purchased during the year:—

Number of films previewed .....	35
Number of films purchased .....	11
Number of additional film prints purchased .....	13
Number of additional filmstrip prints purchased .....	1
Total library holdings (films and filmstrips) .....	950

As in the past, when new health centres were opened, they were provided with 16-mm. film projectors. Two were provided this year. In addition, 37 combination filmstrip and slide projectors were provided, and it is hoped that it will be possible to place such projectors in all the field offices early in the new year. Provision of this equipment was made possible through National Health Grants.

The routine biennial servicing of film projectors was continued. This programme has proved most satisfactory and, as anticipated, the costs began to show a decrease. As long as this programme continues, efficient projectors and minimal upkeep can be reasonably assured.

## PAMPHLETS AND POSTERS

As in the past, a large percentage of the pamphlets and posters available for public distribution was obtained from the Department of National Health and Welfare. Over the years a close liaison has been maintained with that Department's Information Services Division, which supplies the materials, and during the year the Director was privileged to attend the Biennial Federal-Provincial Health Education Conference held in early April at Ottawa. The meeting presented an opportunity for the presentation of Provincial needs with respect to the pamphlets and posters required for the various programmes.

Due to additional stockroom facilities, which became available early in the year, it was possible to stock pamphlets and posters from sources other than the Department of National Health and Welfare and those produced by the Health Branch. This was of significant help to the health units, who can now order from one central point of supply rather than from as many as 16 different sources.

The Public Information Assistant co-operated with the Consultant in School Health Education in the production of a pamphlet on children's shoes. This pamphlet was prepared in answer to numerous requests from public health field staff for material on this subject.

In addition, a draft of a pamphlet on the work of the Public Health Inspector has been prepared, and pamphlets produced by the Division several years ago are in the process of being revised.

## PHOTOGRAPHS, DISPLAYS, AND EXHIBITS

A gradual start was possible during the year toward increasing the slide and photograph collection for use by local health units. These aids are frequently required for displays in connection with health centre openings, fall fairs, and other similar occasions. As the collection increases, it is hoped that, in addition to slides

and photographs, it will be possible to provide certain other basic materials for use as displays and that a manual on simple display techniques can be prepared as a guide for the field staff.

During the year, additional colour photographs were taken for use in the permanent Departmental exhibit at the Pacific National Exhibition. Also, the Health Branch's contribution to the "Safeguarding Motherhood" display, put on each year at the Pacific National Exhibition by the British Columbia Division of the Canadian Medical Association, was revised.

#### PRENATAL CLASS GUIDE

At the request of the Division of Public Health Nursing, this Division was asked to participate in a review of the classes for expectant parents. As a result of the review, a number of changes were decided upon. Preparation of a revision of the nurses' guide for conducting the new classes will get under way shortly.

#### IN-SERVICE EDUCATION

##### INSTITUTE

Again the Division was deeply involved in the Annual Public Health Institute, held for the third consecutive year on the campus of the University of British Columbia. Departing from the previous practice of holding many general sessions and a few sectional meetings, there was an increased emphasis on workshops, clinical sessions, and sectional meetings, with only two general sessions. Speakers at the first general session were Dr. J. F. McCreary, Dean of the Faculty of Medicine at the University of British Columbia, who discussed the implications of the Hall Commission Report on Public Health, and Dr. Roy Watson, Associate Professor and Chairman of the Department of Anthropology and Sociology of the University of Victoria, who spoke on "Social Change and the Health Professions." At the second general session there were two more guests from the University of British Columbia, Dr. G. F. Parfitt, Professor of Oral Medicine, Faculty of Dentistry, presented a paper on the "Development of Research in Preventive Dentistry," and Dr. Donald O. Anderson, Associate Professor of Preventive Medicine, discussed two topics, one on air pollution and the other on smoking.

This new design of the institute proved to be highly successful, and it is anticipated that the same plan will be followed for future institutes.

##### MONTHLY NEWSLETTER

Another area of in-service education in which the Division was involved was compilation and editing of the monthly staff newsletter. During the year the format was revised to facilitate processing of routine instructions for the field staff and the revisions and amendments for the Health Branch Policy Manual, both of which are issued as parts of the newsletter.

##### POLICY MANUAL

The present Director continued as a member of the Policy Manual Committee. One of the considerations leading to the forthcoming recruitment of the health education trainee is that the new appointee will assume this function. The Division will then be in a position to enlarge its activities in this area and thus provide increased assistance to the Division of Public Health Nursing.

### ORIENTATION

As in the past, arrangements were made for the orientation of new public health senior staff, and suitable schedules and itineraries were made for visiting public health officials.

### LIBRARY SERVICE

The many requests received for library research were attended to frequently with the assistance of the research staff of the Provincial Library. The Provincial Library also co-operated in the cataloguing of all new items added to the Health Branch library, both in Victoria and Vancouver. During the year, 208 new titles were added to these libraries—199 in Victoria and 9 in Vancouver.

The co-operation of the Provincial Library in providing such consistently excellent service is sincerely appreciated.

### HEALTH EDUCATION FUND

In line with the policy of encouraging health units to increase their capacity to meet local needs in health education, a matching fund was established. Health units which raised local health education funds could have it matched, to a stated maximum, provided the intended expenditures were for items and services not covered by existing budgets. This fund was made possible by National Health Grants and should be of significant assistance in increasing community health education activities.

### SMOKING AND HEALTH

The previous Director, Mr. Goodacre, accompanied four student delegates, chosen among Grade XII students in British Columbia secondary schools by the Department of Education, to a youth conference on smoking and health held in Ottawa. The conference was sponsored by the Department of National Health and Welfare, and one of its purposes was to obtain teen-age opinions on suitable educational methods in this area. When the report of the conference was received, preparations were made to distribute a summary for the benefit of the public health staff.

It was obvious from the large number of requests for films, pamphlets, and reference materials that teachers made increased use of the smoking and health kit provided through this Division last year. Similar requests were received for materials involved in the trial teaching unit on smoking, prepared by the Consultant in School Health Education for Grade V in the Powell River School District. To meet these demands, steps were being taken to increase the Health Branch's stocks of pamphlets, posters, and particularly films in order to ensure the effectiveness of the programme.

### VENEREAL DISEASE EDUCATION

The teaching unit on the venereal diseases which was under discussion last year was completed, approved by this Department and the Department of Education, issued by the latter Department, and is now part of the curriculum in the secondary schools of the Province at the Grade X level.

At the request of the Division of Venereal Disease Control, two special educational posters (one for each sex) were prepared and distributed throughout the Province for display in public washrooms. These created an unexpected public interest and served emphatically to direct attention to the situation involving the venereal diseases.

As with the smoking programme, it will be necessary to increase the Health Branch's stocks of audio-visual aids, pamphlets, and posters to ensure the effectiveness of this important educational programme.

## REPORT OF THE ACCOUNTING DIVISION

*For the Period April 1, 1964, to March 31, 1965*

The comparison table shown at the end of this report, "Public Health Services Gross Expenditures for the Fiscal Year April 1, 1964, to March 31, 1965," shows an expenditure of \$9,195,766.

The Division of Tuberculosis Control expenditure continues to decrease from previous fiscal years. Ten years ago this Division accounted for 53.4 per cent of all moneys spent for Public Health Services in comparison with 20.9 per cent in 1964/65.

A further review of the Division of Tuberculosis Control expenditures discloses that 10 years ago in-patient care accounted for 94.6 per cent of the Provincial tuberculosis budget compared with 64.4 per cent of the 1964/65 budget.

Out-patient care, which includes survey and case-finding, shows that 1.7 per cent, representing \$64,903 of the Division of Tuberculosis Control budget, was spent in this service during the fiscal year 1954/55. In the fiscal year 1964/65 this section of expenditure increased to \$594,098, representing 30.9 per cent of all money spent by the Division of Tuberculosis Control.

The cost of Local Health Services has increased from 26.2 per cent of the Public Health Services budget for the fiscal year 1957/58, representing \$1,999,027, to 39.4 per cent of the budget for the 1964/65 fiscal year, representing an expenditure of \$3,627,401. The *per capita* cost of Local Health Services (outside the three metropolitan areas, Vancouver, New Westminster, and Victoria) was \$3.65 for the fiscal year 1964/65.

The section of the Public Health Services Gross Expenditure Table dealing with cancer, arthritis, rehabilitation, research, etc., shows that \$1,676,826 was spent in the fiscal year 1964/65. The largest part of this expenditure was to cover the net operating costs of the British Columbia Cancer Foundation, wherein the Public Health Services provided \$739,678 from the Provincial Health budget toward the operation of the British Columbia Cancer Institute, consultative services, cytology services, and the Victoria Cancer Clinic. The balance of the appropriation, \$937,148, was expended by grants to voluntary agencies, research, and professional training.

Poliomyelitis expenditures showed little change from the previous fiscal year. Costs of poliomyelitis vaccine amounted to \$136,264. The Poliomyelitis Pavilion within the Pearson Hospital expended \$317,885 for the care and treatment of approximately 38 patients housed within this unit.

The transfer of patients from Marpole and Allco to Pearson Hospital was completed in 1965, and expenditures relating to patients requiring continuing care will be shown in next year's report.

The *per diem per capita* rate for the fiscal year April 1, 1964, to March 31, 1965, for the in-patient care section of the Health Services is as follows:—

Tuberculosis units—Willow Chest and Pearson Hospital—combined costs .....	\$21.18
Poliomyelitis unit, Pearson Hospital .....	27.87
Continuing care, Pearson Hospital .....	13.48

*Comparison Table of Public Health Services Gross Expenditure for the  
Fiscal Years 1962/63 to 1964/65*

Service	Gross Expenditure			Percentage of Gross Expenditure		
	1962/63	1963/64	1964/65	1962/63 <sup>1</sup>	1963/64	1964/65 <sup>1</sup>
Division of Tuberculosis Control.....	\$2,031,829	\$2,059,786	\$1,919,939	24.8	23.3	20.9
Local Health Services.....	3,125,632	3,397,911	3,627,401	38.1	38.4	39.4
Cancer, arthritis, rehabilitation, research, etc	1,386,219	1,555,792	1,676,826	16.9	17.6	18.2
Poliomyelitis.....	382,096	429,021	454,149	4.7	4.9	4.9
General administration and consultative ser- vices.....	438,741	486,161	517,071	5.4	5.5	5.6
Division of Laboratories.....	421,481	465,094	494,915	5.1	5.3	5.4
Division of Vital Statistics.....	318,430	338,471	379,076	3.9	3.8	4.1
Division of Venereal Disease Control.....	95,257	109,736	126,389	1.2	1.2	1.4
Totals.....	\$8,199,685	\$8,841,972	\$9,195,766	100.0	100.0	100.0

<sup>1</sup> Percentages may not add to 100.0 due to rounding.

## REPORT OF THE BUREAU OF LOCAL HEALTH SERVICES

Within the Bureau of Local Health Services, personnel serve either at the community level as members of individual health unit staffs or, in Victoria, as consultants within a number of specialized divisions offering supervisory and consultative services to the field staffs in the 18 health units bracketing the entire Province. This report summarizes the work of these divisions—namely, Public Health Nursing, Preventive Dentistry, Epidemiology, Public Health Engineering to include Sanitation, and the Nutrition Service. The work of the local health unit staffs can be seen in more detail by reference to their individual annual reports.

It is the custom each year to highlight a particular aspect of the activities of the Bureau, and this year the activities of the Division of Preventive Dentistry are considered in some detail.

### PREVENTIVE DENTAL SERVICES

It is now 16 years since it was possible to implement the decision to establish a Division of Preventive Dentistry. In summary, hereunder are the objectives of the Division as outlined by the Department at that time:—

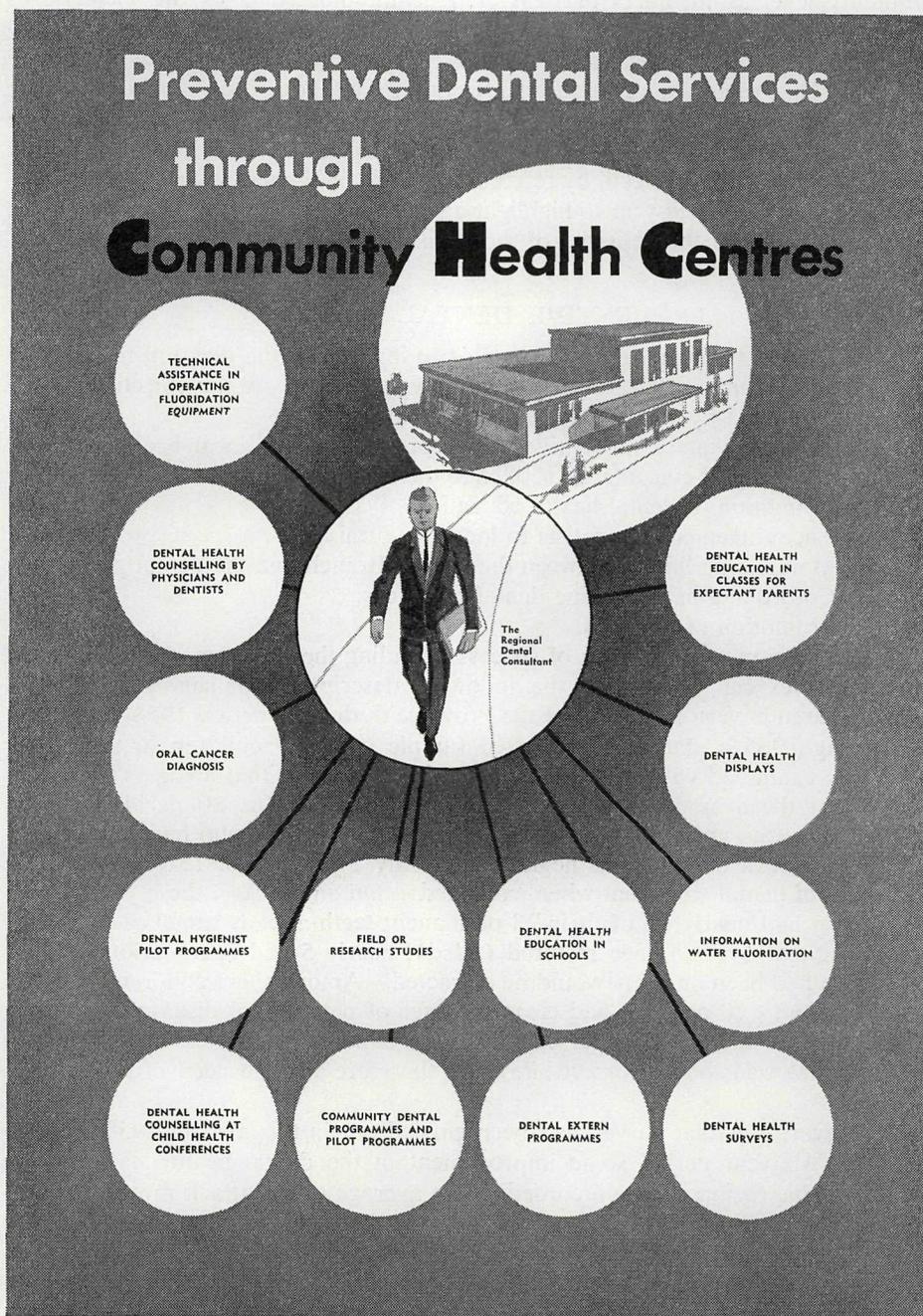
- (1) Development of preventive dental programmes in local health services.
- (2) Provision of consultative service to the Health Branch.
- (3) Promotion of dental health education.
- (4) Encouragement of dentists to locate in rural areas.
- (5) Maintaining liaison between the Health Branch and the dental profession.
- (6) Co-ordination of existing dental resources.
- (7) Promotion of research.

An indication of the degree of success attending the efforts made in pursuit of these objectives can be seen in the following descriptions of surveys conducted among children in various regions of the Province during the period 1958–65.

During 1965 a statistically selected sample of 1,227 children in the Fraser Valley was examined with the assistance of the dentists in that area. This survey showed that the average 7-year-old has more than 7 of his 20 deciduous teeth attacked by decay, and one-third of the children of this age-group had to be classified "treatment of dental caries neglected." Only 7 per cent of 15-year-olds were not in need of dental treatment when examined. On an average, these young teenage children had nearly 12 of their 28 permanent teeth already attacked by decay. Of these 12 teeth, 6 had been restored (filled), nearly 5 had open carious lesions, and 1 tooth had been or likely would be extracted. Among these children aged 7 to 15 years close to 20 per cent had clear evidence of periodontal disease (disease of the gums). In addition, 30 per cent of these children were classified as having "severe" malocclusion (incorrect bite) and therefore were in need of orthodontic treatment.

However, a similar survey had been carried out in this area in 1959. In the subsequent six-year period some improvement in the dental health status of the children of this region can be recorded. The average caries attack rate of the permanent teeth for children of all ages has decreased from 6.2 to 5.8 teeth per child. The percentage of children who had lost permanent teeth is also lower by a statistically significant degree, and the percentage of children who had caries-free permanent teeth has increased. Although similar surveys in the health units of Vancouver Island in 1958 and 1961 showed a slight decline in the dental health of the children of that area, surveys in the Kootenay region in 1959 and 1963 showed a slight improvement, and in Greater Vancouver during the period 1958 to 1962 a significantly higher level of dental health was attained. Furthermore, surveys carried out

# Preventive Dental Services through Community Health Centres



in the northern health units in 1960 and 1964 showed great improvements. In that area some 40 per cent of the children examined were resident in communities which have commenced fluoridation of their water supplies during the past nine years.

### ADMINISTRATION

Historically the health services of Greater Vancouver and Greater Victoria developed autonomously from those serving the remainder of the Province. Grants-in-aid toward the annual costs of the school dental services of the metropolitan areas were made by the Government of this Province prior to 1949. However, in 1951 such grants became contingent upon these services adopting preventive programmes.

In 1951 full-time dental officers were appointed to seven Provincial health units. During the following three years there were four such appointments. These dental officers endeavoured to provide clinical preventive treatment to all Grade I pupils and some pre-school children of the area served by each health unit.

In 1954 it was decided that the full-time dental officers with the health units could be more effectively utilized as dental consultants to two or three (later three or four) adjacent health units. It was planned that all such dental officers would receive graduate training in dental public health and their duties would be solely in the areas of education, administration, and research. By 1960 five regional dental consultants were appointed.

To correlate preventive dental policies throughout the Province, the British Columbia Dental Health Officers' Council first met in annual session in 1951. This Council includes the Director of this Division, all regional dental consultants, senior dental officers of Greater Vancouver and Greater Victoria, and representatives from the Department of National Health and Welfare and the Faculty of Dentistry of the University of British Columbia.

### PROGRAMMES

#### METROPOLITAN DENTAL PROGRAMMES

Ten years ago in the school-year 1954/55 in Greater Vancouver and Greater Victoria a total of 72 per cent of all Grade I pupils of these areas were either reasonably dentally fit when examined (31 per cent) or later in the school-year were restored to dental health by their family dentists (12 per cent) or by the school dental clinics (29 per cent). In the last school-year (1964/65) a total of 91 per cent were either reasonably dentally fit when examined (49 per cent) or were subsequently treated by their family dentists (21 per cent) or in Greater Vancouver, by the school dental clinics (21 per cent). The Greater Vancouver clinics provided preventive treatment to 3,356 Grade I pupils and 2,902 kindergarten and pre-school children. (In Greater Victoria all dental treatment is now carried out by private practitioners.)

In addition to the dental examinations and treatment provided by these programmes, over 8,000 parents of pre-school, kindergarten, and Grade I pupils received individual advice as to how dental disease and thereby dental bills for their children can be very greatly decreased.

#### COMMUNITY DENTAL PROGRAMMES

In the fiscal year 1949/50 six community preventive dental programmes were organized in the health unit areas in co-operation with eight local dentists. Dental health education and preventive dental treatment for 381 pre-schoolers and pupils of Grades I to III were thereby provided. Ten years later, in the school-year 1959/60, there were 97 such programmes in which 134 dentists participated. Over



Parent counselling is an integral part of preventive dental services in metropolitan areas.

10,000 children benefited by these preventive services, of whom 28 per cent were pre-schoolers and 60 per cent were Grade I pupils. During that year over 60 per cent of the total Grade I population of the Province received dental care. It was therefore planned that in future years increased attention was to be directed to younger children so that more emphasis could be placed on prevention and less on treatment. By 1964 the ratio of pre-school children registered in the community programmes had increased to 55 per cent. That year, of all children registered in these programmes, 74 per cent received a topical application (painting) of their teeth with a fluoride decay-preventing solution.

In 1964 it was also noted that in many rural communities with resident dentists 70 per cent of all 5-year-olds were receiving dental treatment. In agreement with the British Columbia Dental Association, pilot programmes were commenced in seven school districts. In these areas the health unit mailed a special attractive birthday card to each child as he reached 3 years of age. This card encourages the parents to take the child to their family dentist and, at no cost, to receive examination, X-rays as necessary, consultation, and in most cases a topical fluoride application. Costs of restorative treatment (fillings) are the responsibility of the parents. These programmes, in their first year of operation, have resulted in over 1,000 3-year-olds visiting their family dentists. Participation rates have ranged between 25 and 50 per cent, depending upon the amount of publicity within the community, and also to a degree on the delay in being able to obtain a dental appointment. It was planned that a further seven pilot programmes commence late in 1965 or early in 1966. If these 3-year-old dental birthday-card programmes are as successful as hoped, it is anticipated that during the next several years they will replace the present community programmes in areas with resident dentists.

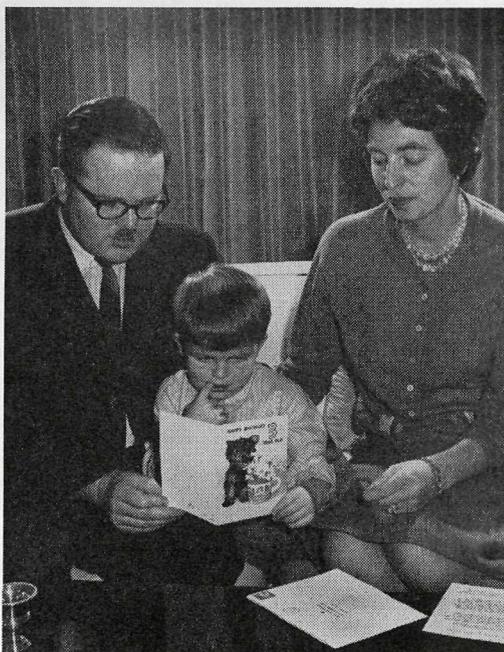


Community dental programmes stress early and regular dental care, commencing at 3 years of age.

During the school-year 1964/65, in addition to the pilot programmes, 69 community preventive dental programmes were successfully carried out in all 18 health unit areas, including 54 school districts. Eighty resident dentists provided services through these programmes to approximately 3,750 children, of whom two-thirds were pre-school children.

Community dental programmes are sponsored by a local agency, usually the Board of School Trustees which receives through the National Health Grant programme a grant which is generally one-half of the honoraria paid to the participating dentists. These honoraria are very considerably less than the dentists would usually earn if engaged in private practice. Programmes made available to 4-year-olds only, receive a grant of two-thirds of the costs and for 3-year-olds only, three-quarters of the costs.

The administration of the community and pilot programmes is supervised by the regional dental consultants.



Children in areas where a pilot dental programme is in operation receive an attractive birthday card as they become 3 years old.

## DENTAL PUBLIC HEALTH EXTERNS

Since 1951 this Division has been active in arranging for dentists to visit the smaller and often remote communities of this Province — communities without resident dentists. In 1954, two dentists were engaged to provide preventive services to such communities, each on a continuing schedule of assignments lasting approximately 12 months. In 1961 the recruitment of such dentists was formalized into the current dental public health extern programme. Four and latterly five young graduate dentists have been recruited each year from the dental schools of Canada. These dentists are under the direction of the dental consultants and are employed by the local community to provide two sessions (three hours each) every day to the local dental programme. In the late afternoon and evening they treat older children and adults on a private-practitioner basis.

Forty-one communities, each without a resident dentist, were visited during the school-year 1964/65 by five dental externs. A further 14 communities were visited by 13 other dentists either on a monthly basis or for periods of a few weeks. Over 3,000 children were registered in the preventive programmes in these areas.



Young dental health externs visit over 40 communities which lack a resident dentist.

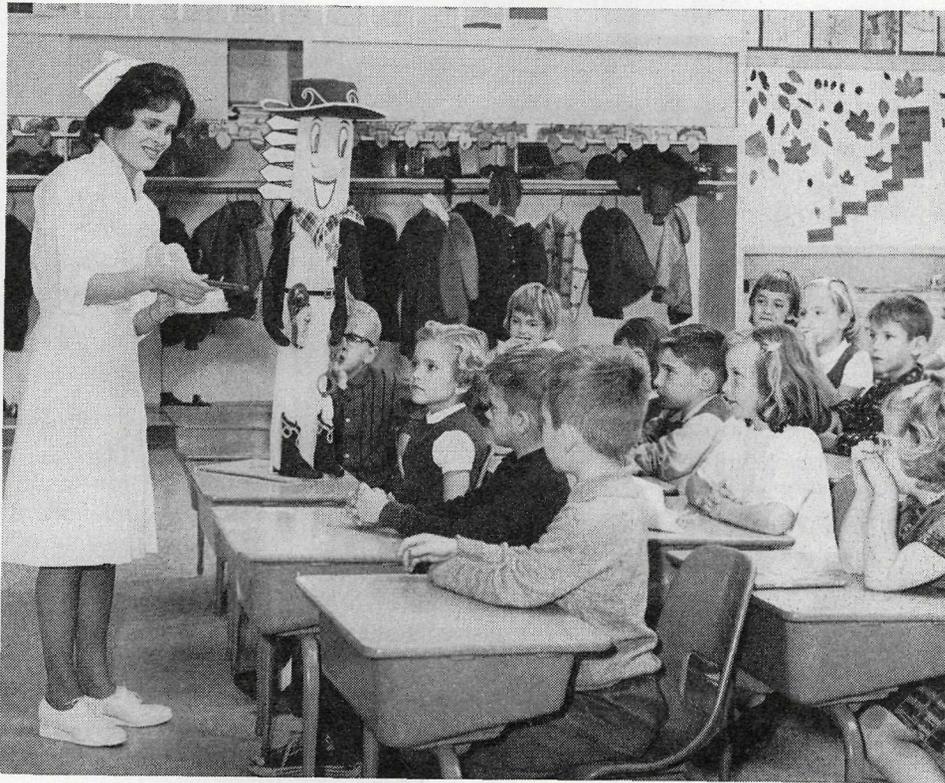
## GRANTS-IN-AID TO RESIDENT DENTISTS

To encourage dentists to establish a resident practice in smaller communities without such services, a programme of grants-in-aid was commenced in 1952. Two such grants were made available in 1965.

## DENTAL HYGIENIST PILOT PROGRAMME

The South Okanagan Health Unit, through a National Health Grant, has employed a dental hygienist since the summer of 1964. Three-year-olds in Penticton are invited to attend the Health Centre for a dental examination, counselling, and a topical fluoride application.

Response to this programme has been outstanding. This past year (1965) almost 80 per cent of the 3-year-olds in this community have benefited by their participation. This high level of acceptance has been achieved by the use of television, press coverage, radio spot announcements, and personal telephone follow-up to all families who did not make an appointment subsequent to the mailing of an initial letter. In addition, this hygienist has vigorously promoted dental health education in the schools of the community, especially at the Grade I level. It is planned to evaluate the results of this pilot programme in the summer of 1966.



The pilot dental hygienist programme promotes dental health education in the schools.



Transportable dental equipment brings dental services to more than 50 communities. It is shown in use here by the dental hygienist.

#### TRANSPORTABLE DENTAL EQUIPMENT

To bring dental services to communities without a resident dentist, transportable dental equipment was especially designed in 1950 by this Division. The first sets were manufactured in 1951. In 1959 duraluminum was used to fabricate this equipment in order to reduce the weight considerably. In that same year the first transportable high-speed air rotor dental unit was purchased. This equipment has been used extensively by visiting dentists, dental externs, and now by the dental hygienist. It has been transported to remote communities by station wagon, trailer, truck, train, ship, boat, and on occasion by air.

However, since 1950 there have been dramatic advances in the design of dental equipment, and at this time this Division is developing a prototype of a set of transportable dental equipment incorporating completely new concepts. It was planned that the prototype be essentially completed before the close of 1965, and that it undergo field trials during the first three months of 1966, with modifications then being carried out as required. It is hoped to commence replacing the 18 sets of equipment now in use before the fall of 1966.

#### DENTAL HEALTH EDUCATION

One of the first tasks of this Division upon its establishment was to evaluate, select, purchase, and distribute to local health units and the metropolitan health services scientifically accurate dental health educational aids. In addition to the pamphlets, posters, films, and filmstrips available in North America, similar items have been purchased from agencies in the United Kingdom and New Zealand.

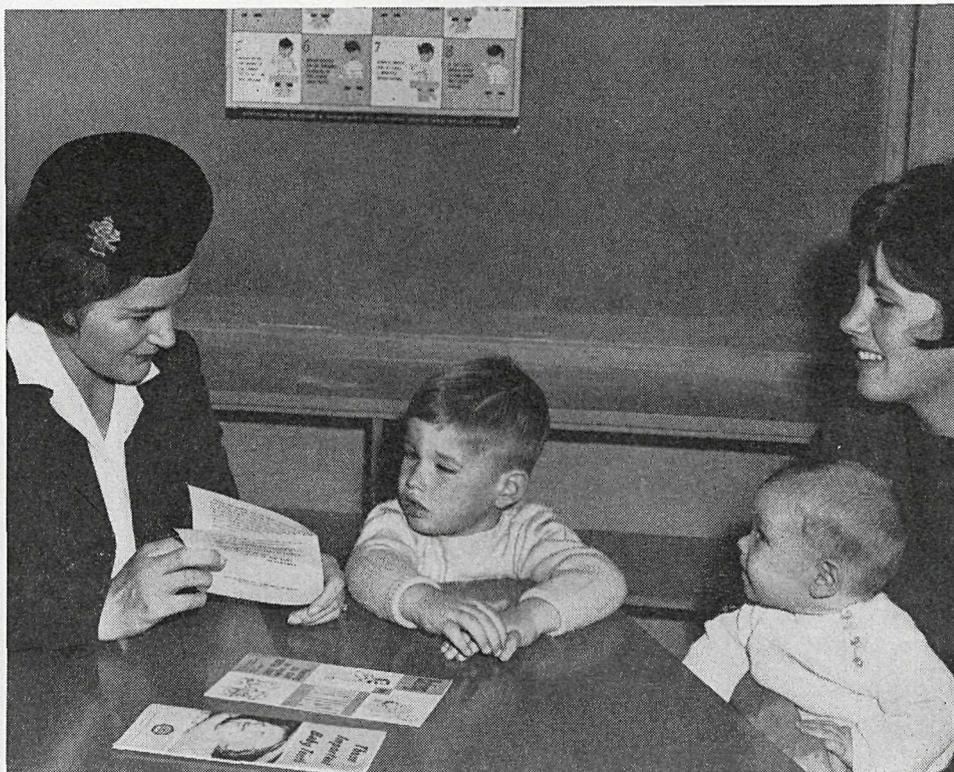
Since 1954 it has been stressed that dental health education is the responsibility of all members of the health unit team. Opportunities for such education present themselves at prenatal classes, child health conferences, teacher-nurse conferences in the schools, during home visits, and when giving talks to adult groups such as service clubs and parent-teacher meetings.

Since 1959 classroom dental health teaching kits have been made available by health units to schools. A sturdy wooden box contains models, filmstrips, posters, and pamphlets suitable as teaching aids for the primary grades.

During the year, with assistance from this Division and the British Columbia Dental Association, the Division of Public Health Education has designed an entirely new dental health teaching outline. This experimental design for teaching dental health in the schools of this Province is now undergoing field testing.

At this time, health unit staffs can obtain as audio-visual aids on dental health 15 different pamphlets, 20 posters, 10 filmstrips, and 27 films.

The dental consultants advise health unit staffs as to how best these aids may be used and keep them informed as to the latest research findings pertaining to preventive dentistry. The consultants also devise and have presented dental health messages and programmes for radio and television stations and prepare appropriate press releases.



Dental health education is carried out by all members of local health unit staffs.

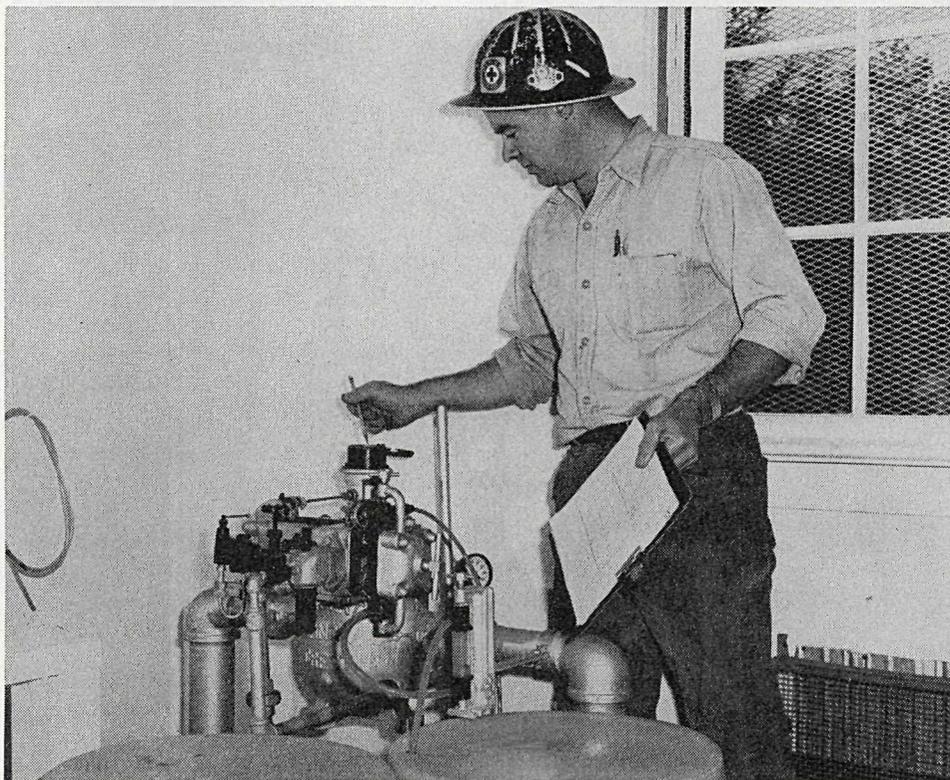
#### RADIATION PROTECTION

During the years 1961 and 1962 a survey was carried out to eliminate unnecessary radiation hazards from dental X-ray units. As at January 1, 1962, there were 671 dentists licensed to practise in this Province, including those in administrative appointments. At the close of the survey, 437 X-ray units in dental offices had been monitored by the use of film badges supplied and especially interpreted by the Radiation Protection Division of the Department of National Health and Welfare. Since that time the Division of Occupational Health of the Health Branch has carried out a continuing programme whereby a radiological technician visits dental offices throughout the Province. On these visits a most thorough inspection of the X-ray unit is undertaken and the dentist appropriately advised. By the close of 1965 over 600 such inspections had been carried out.

## FLUORIDATION

The first communities in British Columbia to fluoridate their water supplies were Smithers and Prince George in 1955, followed in 1956 by Kelowna. Currently 12 districts in British Columbia have water fluoridation—approximately 4 per cent of the total population of this Province. During 1965 fluoridation equipment commenced operation at Squamish and Williams Lake, and is being installed at Golden and North Kamloops, with Kimberley and Marysville following suit in 1966.

At the close of the year, fluoridation referenda failed to attain the necessary 60 per cent majority of votes in six communities where referenda were held.



Fluoridated water supplies are regularly checked and tested.

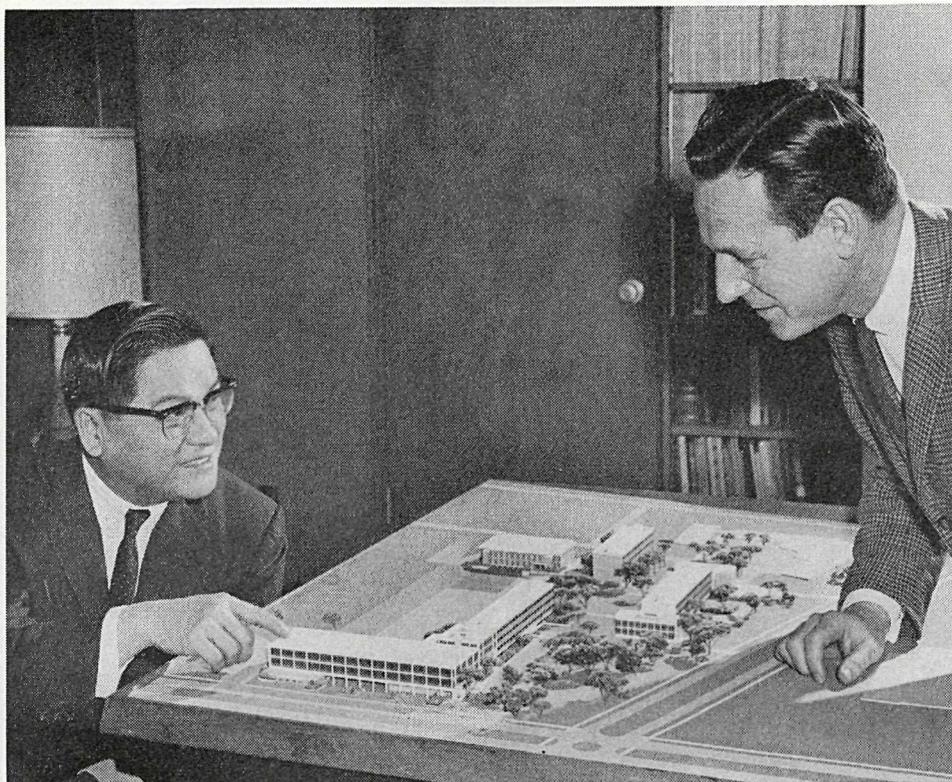
## ORAL CYTOLOGY

During the year, with the co-operation of the Faculty of Dentistry of the University of British Columbia, plans were finalized with the British Columbia Cancer Institute for the phased inauguration of an oral cytological service for the Province.

In due course any dentist of British Columbia will be able to submit for diagnosis a scraping from any lesion of the oral cavity which he suspects might possibly be malignant. It is anticipated that this service will result in a greater number of oral cancer cases being diagnosed earlier and thereby successfully and more easily treated.

## DENTAL PERSONNEL

At the beginning of 1965 the ratio of dentists to population in British Columbia was 1:2,371, a more favourable ratio than in any other Province of Canada. At that time 733 dentists and 15 dental hygienists were registered to practise in the Province.



Dr. S. Wah Leung, Dean of University of British Columbia's Faculty of Dentistry, discusses some aspects of the new dental school with Dr. D. J. Yeo, Head of the Department of Public and Community Dental Health.

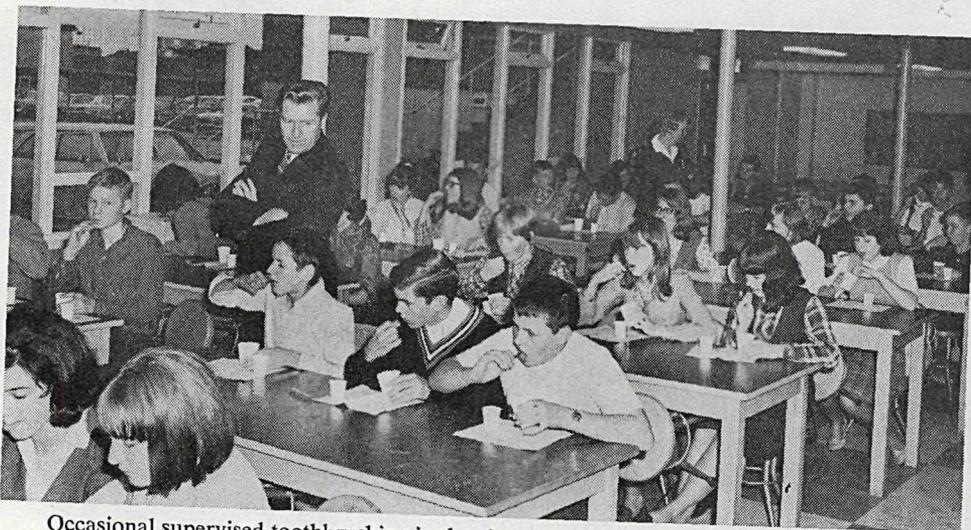
In 1951 when the ratio of dentists to population in this Province was 1:2,203, action was taken to promote establishment of a Faculty of Dentistry at the University of British Columbia. In July, 1962, Dr. S. Wah Leung was appointed first Dean of the Faculty of Dentistry, and eight students were admitted into the first class in the fall of 1964. It is hoped that this number will be increased in the near future.

#### RESEARCH

Evaluation research has been a feature of this Division since 1955, when a methodology was prepared to measure the dental health status of the children of the Province in a scientific and statistically valid manner. This methodology was tested in the years 1956 and 1957. During the period 1958-60, surveys were carried out throughout the Province wherein over 9,000 children were dentally examined. These children were a statistically selected sample of more than 97 per cent of the school population of British Columbia. To measure any subsequent changes in the dental health of the children, a further series of surveys was started in 1961 and will be completed in 1967.

Field clinical research to investigate techniques whereby dental disease might be better prevented was first sponsored by this Division in 1959 in Greater Victoria. That study demonstrated the decay-reducing results of a single application of a solution of stannous fluoride to the teeth of children 6 and 7 years of age. Since that time nine reports of research projects carried out by members of this Division have

been published in scientific journals and have included such topics as the relationship between intake of fluoridated water and caries prevalence, observation of children's teeth as a diagnostic aid, and reduced dental decay by supervised toothbrushing in the classroom, using a fluoride phosphate solution.



Occasional supervised toothbrushing in the classroom with a special solution may prove to reduce dental decay significantly.

The last of these studies was encouraging and has led to a further project being carried out in the secondary schools of New Westminster and Coquitlam involving 1,266 Grade VII students. After one year 1,160 were available for re-examination and five supervised toothbrushings had been carried out. Preliminary tabulations suggest that after one year the experimental group who had brushed their teeth with the fluoride phosphate solution had approximately 20 per cent fewer new carious tooth surfaces compared with the control group, who had brushed their teeth with distilled water. This project is being continued a second year, after which it will be assessed as to whether results at that time justify continuance into a third year.

A further research project has been completed this past year and the report accepted for publication—"Survey of Community Knowledge, Attitudes and Habits in Regard to Four Dental Health Practices as They Apply to Children." From this study a methodology has been devised to enable health unit staff to measure the knowledge, attitudes, and habits within a community with respect to a specific health practice or group of practices, and these data will be used to develop a sound educational programme in dental health.

#### PATTERNS OF DISEASE

Most people are now familiar with the upsurge in the incidence of VENEREAL DISEASE which had occurred throughout the Province, particularly since 1961. A very active control programme was instituted in 1964 and details are reported elsewhere. The medical health officers and the staff in local health units provided 6,050 services in 1965 to patients and their contacts in interview, examination, or treatment. This represents a 39-per-cent increase over the previous year and a 75-per-cent increase in work load as compared with two years ago. In certain health units specialized staff have had to be appointed to work full time within this programme while elsewhere staff have had to be diverted from other duties.

It is most gratifying to be able to report that no case of PARALYTIC POLIO-MYELITIS was reported in this Province during the year. Indeed, there has been only one proven case in the last three years, and this speaks well for the efficacy of the vaccines which have been accepted by so many since 1955.

There were five cases of BOTULISM, a slight increase from the one or two cases reported annually in recent years. Two were reported from Bella Bella following the ingestion of toxin-contaminated fish eggs. Three other cases occurred near Kamloops after eating home-canned green peppers. Two of these latter patients died, and the third at year's end was still severely ill. This illustrates yet again the necessity to cook home-canned foods adequately.

For the second year in succession no DIPHTHERIA was reported. This is in contrast to reports from several other Canadian Provinces which show a slight increase.

The number of cases of BACILLARY DYSENTRY has continued to decline from a peak of over 1,000 in 1960 to just over 100 in 1965.

STAPHYLOCOCCAL FOOD POISONING almost always occurs as a result of careless handling of large amounts of food in camps, at church suppers, or at banquets. The number of reported cases tends to vary widely from year to year, and although precise figures are not available, several small outbreaks involving 200 to 300 people occurred. Another type of illness associated with contaminated food is infection with SALMONELLA. The number of reported infections continues at a high level, amounting to more than 300 cases. A tremendous amount of research has been carried out in British Columbia in an attempt to identify sources and methods of transmission of this disease. It is felt that the majority of human infections come from animal sources, and that these non-human reservoirs are probably themselves infected by being fed contaminated animal-feeds. A recent Federal regulation requiring pasteurization of egg powder has resulted in a dramatic decrease in the number of contaminated samples of cake-mix found in Canada. It may well be that sterilization of prepared animal-feeds will prove to be the best answer in the prevention of human cases of this disease.

Although the total annual number of reported cases of INFECTIOUS HEPATITIS continues to decline throughout North America, some 1,200 cases were still reported in British Columbia this year. This represents a decrease of 700 cases from the high reached in 1962, but it is interesting to note that this disease is still most prevalent in those areas where no community sewers are in use. Undoubtedly one of the most effective long-term control measures lies in the installation of a properly functioning sewage-disposal system. Gamma globulin, which is distributed free on a limited scale by the Health Branch, is now felt to prevent only the clinical symptoms of this disease. It is thought that people who have had this product can still acquire the disease and, more importantly, can still spread it. This raises real problems in control, since the individual may act as a source of infection while apparently enjoying good health.

There were 864 cases of SCARLET FEVER, almost three times the number notified last year. This disease has been fairly mild in nature during the past 20 years, and the principal danger comes from unrecognized or inadequately treated cases since a small percentage of children go on to develop rheumatic fever.

A few cases of TYPHOID and PARATYPHOID FEVER are reported each year, with a total of 11 in 1965. In recent years the source of infection has generally been traced to elderly carriers who knowingly, or perhaps unknowingly, had this condition many years ago and who have continued to excrete bacteria intermittently ever since.

Control of communicable disease involves the local medical health officers and public health nurses in the occasional stimulating activity of attempting to control a local outbreak but, in addition, in promoting the routine day-to-day acceptance of the preventive armamentarium. This is humdrum work which goes along mainly unnoticed but is tremendously time-consuming and involves the continued application of up-to-date knowledge and expert technique. For example, during the past year 5,800 prophylactic injections to protect against INFECTIOUS HEPATITIS, RUBELLA, and RUBEOLA were given, while 4,600 home visits were made as part of epidemiological investigation and follow-up. Some appreciation of the tremendous volume of immunizations completed can be obtained when one considers that 103,480 SMALLPOX vaccinations were given to children and adults, 178,700 persons received Sabin vaccine as protection against POLIOMYELITIS, and 27,780 completed the basic series to obtain protection against POLIOMYELITIS, TETANUS, and DIPHTHERIA. In addition, 149,440 reinforcing doses and other individual injections were given. All in all, nearly half a million individual treatments were involved in protecting the residents of this Province against communicable disease. Utilization of disposable needles and syringes was initiated in all areas this year, at a considerable saving in expense.

The RHEUMATIC FEVER prophylaxis programme continued with little change throughout 1965, and 1,286 children were receiving free penicillin at the

*Reported Communicable Diseases in British Columbia, 1961-65*  
(Including Indians)

(Rate per 100,000 population.)

Reported Disease	1961		1962		1963		1964		1965	
	Number of Cases	Rate								
Botulism.....	9	0.5	-----	-----	2	0.1	1	0.1	5	0.3
Brucellosis.....	2	0.1	2	0.1	1	0.1	-----	-----	2	0.1
Diarrhoea of the newborn ( <i>E. coli</i> ).....	35	2.4	19	1.1	27	1.6	52	3.0	33	1.8
Diphtheria.....	1	0.1	3	0.2	1	0.1	-----	-----	-----	-----
Dysentery—										
Amoebic.....	2	0.1	1	0.1	4	0.2	4	0.2	3	0.2
Bacillary.....	307	18.8	152	9.2	169	10.0	131	7.5	116	6.5
Unspecified.....	499	30.6	336	20.3	337	19.9	310	17.8	227	12.7
Food poisoning—										
Staphylococcal intoxication.....	3	0.2	175	10.5	9	0.5	1	0.1	1	0.1
Salmonella infections.....	475	29.1	357	21.5	330	19.4	200	11.5	353	19.7
Unspecified.....	46	2.8	24	1.4	15	0.9	28	1.6	77	4.3
Hepatitis, infectious.....	1,677	102.9	1,889	113.9	1,736	102.4	1,054	60.7	1,248	69.7
Leprosy.....	-----	-----	1	0.1	1	0.1	-----	-----	-----	-----
Malaria.....	1	0.1	-----	-----	1	0.1	-----	-----	-----	-----
Meningitis, viral or aseptic—										
Due to poliovirus.....	3	0.2	1	0.1	-----	-----	-----	-----	-----	-----
Due to coxsackie virus.....	10	0.6	-----	-----	1	0.1	-----	-----	3	0.2
Other and unspecified.....	87	5.3	42	2.5	63	3.7	37	2.1	55	3.1
Meningococcal infections.....	15	0.9	13	0.8	7	0.4	11	0.6	16	0.9
Pemphigus neonatorum.....	12	0.7	-----	-----	1	0.1	5	0.3	1	0.1
Pertussis.....	212	13.0	456	27.5	711	41.9	180	10.4	239	13.3
Poliomyelitis, paralytic.....	6	0.4	2	0.1	-----	-----	1	0.1	-----	-----
Scarlet fever.....	1,081	66.4	573	34.5	426	25.1	324	18.6	864	48.3
Streptococcal sore throat.....	987	60.6	681	41.1	673	39.7	645	37.1	826	46.2
Tetanus.....	3	0.2	2	0.1	2	0.1	1	0.1	-----	-----
Trichinosis.....	23	1.4	2	0.1	-----	-----	-----	-----	-----	-----
Typhoid fever.....	7	0.4	7	0.4	5	0.3	5	0.3	4	0.2
Paratyphoid fever.....	21	1.3	3	0.2	1	0.1	6	0.3	7	0.4
Totals.....	5,524	339.1	4,741	285.8	4,523	266.9	2,996	172.4	4,080	228.1

year's end. Suggestions have been made that persons over the age of 21 years should be accepted as new patients, but the medical advisory committee does not recommend their acceptance.

Another specialized programme has been developed for POISON CONTROL purposes, and early in the year new sets of poison-control information cards were received from the Department of National Health and Welfare. The information on these cards was not considered suited to our purpose, and, with the assistance of the Faculty of Pharmacy at the University of British Columbia, it is intended that a new set of index cards will be produced, with some 2,000 ready for printing by the end of March next year. A set of these cards will be offered to any hospital in the Province that wishes to report all their cases of accidental poisoning to the Health Branch for study purposes. Plans are also going forward to study the feasibility of feeding all the information on the poison cards into the computer at the University and setting up a Provincial Poison Control Reference Centre at the Health Sciences Centre there, when it goes into operation.

#### ADMINISTRATIVE CONSIDERATIONS

In keeping with the philosophy of extending mental health services on a regional basis throughout the Province, the Prince George Health Centre was enlarged to provide facilities for a mental health clinic team, and planning has been under way during the year for similar extensions to the health centres in Kamloops and Chilliwack. Shortage of staff to operate these services continues to present a very major problem, and, as with most new programmes of this type, personnel within the Health Branch and Mental Health Services are in continued communication in attempting to clarify many areas of mutual interest and concern. Co-operation within the Health Department generally has been extremely satisfactory both at the local and central levels.

Public health nurses have continued to provide service to approximately one-third of the Indians living on reserve by agreement with the Department of National Health and Welfare (Medical Services Directorate). Service was extended to approximately 300 Indians on the Cultus Lake and Sardis Reserves in the Upper Fraser Valley Health Unit area, to 26 Indians at Burns Lake in the Northern Interior Health Unit, and to 500 Indians living on the Sechelt Reserve or attending the Sechelt Indian Residential and Day School, Coast-Garibaldi Health Unit. As the number of special schools for Indian children decreased by reason of integration into the regular school system, close working relations will be maintained with Medical Services Directorate and one foresees a gradual extension of public health nursing services to Indians. The Medical Services Directorate this year adopted the Provincial health-record system, thereby facilitating ease in transfer of information with a minimum of clerical work when Indian children either come into a school where service is provided by Provincial staff or where the family moves off the reserve to be integrated into the general population.

Since the enactment of the *Pollution-control Act* in 1956, the Director of Public Health Engineering had held the position of Executive Engineer and Secretary to the Pollution-control Board while the public health engineers were responsible for processing applications for pollution-control permits. During this period the Minister of Municipal Affairs was responsible for administering this Act. On April 1, 1965, the administrative responsibility for the *Pollution-control Act* was transferred to the Minister of Lands, Forests, and Water Resources and a new position was created for

the Executive Engineer of the Board. Three new public health engineering positions were also created and assigned to the Executive Engineer. This change has served to relieve the public health engineering staff of their previous duties in pollution control and thereby placed them in a position to concentrate more actively on service to the staff of the local health units and through them to the municipalities and consulting engineers throughout the Province. A high degree of liaison and some degree of involvement will be maintained in the field of pollution control.

The result of the time study on the work of the public health inspector indicates considerable emphasis on subdivision and site inspections with some degree of seasonal variation. This type of study, in conjunction with a monthly statistical report completed by all public health inspectors, does indicate trends within the sanitation programme and permit of planning for the future.

The Public Health Inspector's Policy and Procedure Manual, developed to familiarize the new Inspector with the over-all sanitation programme, has been revised to include a guide for the investigation of food-borne disease outbreaks and an outline of their role as factory inspectors. The public health inspector has been giving service under the direction of his medical health officer to industry, but in the past this has been restricted to the sanitation and food-handling aspects only. On examining the activities of the factory inspector within the Department of Labour, it appeared that the health inspector would be able to undertake many of these functions with very little additional training. Since the public health inspectors are located in communities throughout the Province, it seemed reasonable for them to accept additional responsibilities in this field since the Factories Branch of the Department of Labour is not able to cope with the demands for inspection service following the rapid industrial expansion which has taken place. The Director, Division of Occupational Health, Health Branch, will act as consultant to the medical health officers and public health inspectors in the field and will be responsible for maintaining liaison and communication with the Chief Factory Inspector, Department of Labour.

For some time a need has been evident to develop sanitation standards for sewage and garbage disposal, for camp-grounds, mobile homes, swimming-pools, and subdivision development. These have now been prepared and distributed to the health unit staffs and will assist in assuring healthful and attractive living, not only for residents in the Province, but also for the many tourists who choose to visit. Experience already acquired in using these standards has made it all too apparent that since they require only a minimal provision of facility and its maintenance, consideration should be given to the enactment of regulations based on these standards. In this way and only by regulation can the people of the Province together with the visitor be protected from the dangerous and disgraceful conditions occasionally encountered. During the year, assistance was also given to the Department of Education in revising sections of the School Building Manual dealing with sewage disposal, school lighting, medical rooms, sick bay, and food service.

The programme of health centre construction continues unabated with completion of health centres in Alberni, Courtenay, Rutland, Peachland, and a mental health extension in Prince George. Other centres were under construction in Fruitvale and Hope and being extended in Salmon Arm and Chilliwack.

For some time it had been evident that the Boundary Health Unit was excessively large while the North Fraser Health Unit was, by contrast, too small, the former having a population of some 130,000 compared to the latter's 35,000. For

this reason, it was decided to transfer Langley City and Municipality into the jurisdiction of the North Fraser Health Unit, thereby adding approximately 20,000 to total 55,000 population. At this time it was also hoped that the Municipality of Kent and the Village of Harrison (School District No. 76) might agree to join with Chilliwack as part of the Upper Fraser Valley Health Unit. This would have facilitated the administration of sanitation services in particular. However, this suggestion was not accepted locally, and School District No. 76 remains as part of the North Fraser Health Unit area. Following this revision of boundaries, the North Fraser Union Board of Health voted in favour of changing the name to Central Fraser Valley Health Unit.

Improved office accommodation was made available during the year for certain Central Office personnel to include those in the Division of Public Health Engineering and the Stockroom. With this additional space, a more adequate stock of forms, pamphlets, and posters will be maintained for distribution to the local health units.

In conjunction with the Department of Education, some progress has been achieved toward revision of the health education curriculum in schools and an upgrading of the teacher-training in health at the three teacher-training institutes. A steering committee has been formed representing the universities, the medical profession, the Teachers' Federation, and the Departments of Education and Health to consider how best this revision can be carried forward. With the continued extension of health insurance, it is felt that such efforts in health education may result in a more realistic utilization of the various health services to be made available and, additionally, that the teen-ager may be assisted in finding himself amid the complex and confusing social patterns of today's society.

Such extension of health insurance also suggests that the medical health officer must develop an increasing interest in community health-care programmes at all levels. His concern extends to care not only of the acutely ill, but also to those in nursing and boarding homes; to those requiring rehabilitation to include physiotherapy, occupational therapy, and speech therapy; to those who can best and most economically be looked after at home with adequate home nursing and homemaker services; to those who are elderly; and to those who are mentally ill. To the extent that he can work with other agencies and resource personnel in the community to see that each individual receives that level of care most suited to his needs, to that extent can the cost of universal health insurance be maintained at a reasonable level.

#### PERSONNEL

Among Central Office staff, the position of Director, Division of Public Health Engineering, changed hands for a second time within two years. The Director, who served until April 1st, was appointed Executive Engineer to the Pollution-control Board on that date, and the position was filled by the Assistant Director. The Deputy Minister of Health withdrew as the public health member on the Pollution-control Board, to be replaced by the Director of the Division. Three of the five public health engineers on staff this year are new appointees. Their previous experience in design, operation, and equipment maintenance in various phases of public health engineering will add greatly to the resources of this consultative service. A new position of a technical nature was created, that of engineering assistant, and will be filled by a senior public health inspector from the field.

At year's end the Consultant in Nutrition tendered her resignation and will transfer to the British Columbia Hospital Insurance Service.

Changes in the employment of medical health officers occurred in the Central Vancouver Island, Central Fraser Valley, East Kootenay, Selkirk, Simon Fraser,

Cariboo, and Boundary Health Units, and at the year's end continuing vacancies in the ranks of health officers exist in the Central Vancouver Island and Skeena Health Units and in the permanent assistant and trainee positions in Boundary and Simon Fraser Health Units. During the year one health officer proceeded on course to obtain the Diploma in Public Health at the University of Toronto with the assistance of National Health Grants, and two returned, having completed the course to take up positions as health unit directors. Three physicians were recruited to fill vacancies during the year, and three additional physicians presently on staff succeeded in obtaining their certification in public health.

During the year it was necessary to add public health nursing positions within local health services as the population increased in certain areas and in conjunction with the establishment of the home nursing programme in other areas. Three senior public health nurses were added to assist in administration and supervision in the Simon Fraser, South Central, and East Kootenay Health Units. Nine public health nurses were added for the generalized programme at Kelowna, Fort St. John, Prince George, Port Alberni, Coquitlam, Surrey, Kamloops, and in the new branch office at Kaslo. The home nursing programme involved the appointment of four full-time public health nurses in Chilliwack, Courtenay, Salmon Arm, and Burns Lake plus additional half-time positions for Abbotsford, Trail, Terrace, Coquitlam, Prince George, Summerland, and Oliver. In all, this represents 15 full-time and 8 half-time public health nursing positions. A half-time senior physiotherapist position was implemented for the Okanagan health units. With the addition of the new public health nursing positions, the total local public health nursing field staff amounts to 281 full-time, 11 half-time, and 7 part-time plus one practical nurse and 3 half-time senior physiotherapists. It is becoming increasingly difficult to keep up with the demand for public health nursing services, particularly in the rapidly expanding newer communities.

It has been necessary to continue an active training and staff-development programme for all personnel, and the percentage of qualified public health nurses has continued to improve, so that this year 94 per cent of the full-time staff are so qualified, the remainder being employed as trainees who obtain some field experience before proceeding to university. Nineteen per cent have university degrees in nursing, and it is interesting to note that approximately one-third of the public health nurses are married, which, of itself, presents some difficulties in professional development for senior positions where a variety of experience is the required background. This year two Public Health Nursing Supervisors returned from postgraduate university courses in Public Health Nursing Administration completed at the Universities of Toronto and Pittsburgh. The training programme for suitable registered nurses to obtain public health qualifications continues and 9 nurses returned from university while 10 are currently on course. This latter group includes the first male public health nurse to be trained in the service.

Perhaps the most pressing need in training lies in the field of mental health, where the medical health officers and public health nurses continue to accept increasingly heavy responsibilities with the expansion of community mental health programmes. During the year, arrangements were made with the Mental Health Services to provide an eight-week psychiatric affiliation programme for 12 public health nurses each year, and a four-week programme of clinics and lectures was arranged by The Woodlands School for 10 public health nursing trainees. This latter course proved so worth while in instructing public health nurses in the care and treatment of retardates and children with special disabilities that arrangements have been made for four such one-week institutes to be held each year, the first to be attended by

12 public health nursing supervisors. In conjunction with the Department of Continuing Medical Education, University of British Columbia, a correspondence course in sociology was presented this year to public health nursing staff, and in this non-credit course some 200 public health nurses have enrolled.

During the year 38 nurses from the University of British Columbia and 6 from the University of Alberta had a month's supervised field work. In addition, 188 undergraduate nurses from six schools of nursing spent a week in observing public health. In addition, students enrolled in the practical nurse course from the Nanaimo and Prince George Vocational Schools had a short period of observation in the local health units.

In January, three medical health officers attended the annual refresher course at the School of Hygiene, University of Toronto.

With continued expansion in the economy, the role of the public health inspector assumes increasing importance as newer responsibilities are accepted in such fields as subdivision inspection, factory inspection, and pollution control. In the past year, two of the public health inspector trainees were appointed to positions in Kimberley and Salmon Arm on completion of their training. Three additional trainees were recruited during the year, and an additional two new positions were filled in the Okanagan at Revelstoke and Rutland. At the year's end, 25 public health inspectors from the Provincial health units and the Greater Vancouver and Greater Victoria Metropolitan Boards of Health attended a one-week Radiological Defence Course dealing with fallout from nuclear attack and the hazards of radiation from accidents involving the use of radioactive isotopes.

The Health Branch is responsible for the development of Emergency Health Services to include training of selected individuals throughout the Province. Various Provincial conferences and courses were held during the year, and the fifth and last of a series of two dozen hospital disaster institutes was held at St. Mary's Hospital in New Westminster, with representation from all the hospitals in the Lower Mainland. As mentioned above, a five-day Radiation Defence Course for public health inspectors was held and a course for training casualty simulators. Hospital disaster plans were exercised at New Westminster, Trail, and Victoria, and advanced treatment centre demonstrations were held at Trail, New Westminster, Kamloops, and Abbotsford. A casualty collecting unit was activated and demonstrated at the Union of British Columbia Municipalities Conference in Victoria. Various medical personnel attended conferences and courses at the Emergency Measures College in Arnprior, to total 12 from the Health Branch and 8 from other agencies.

## SERVICES AND PROGRAMMES

### PUBLIC HEALTH NURSING

The HOME CARE PROGRAMME continued to form a basic part of the nursing activities in the health units as more areas in the Province voted to have this service. New areas organized this year include Chilliwack in the Upper Fraser Valley Health Unit; Salmon Arm in the North Okanagan; Oliver, Osoyoos, Keremeos, Princeton, Summerland, and Rutland in the South Okanagan; Rossland and Fruitvale in the West Kootenay; and Burns Lake in the Northern Interior. Following the withdrawal of the Victorian Order of Nurses from Nanaimo and Trail, the Central Vancouver Island and West Kootenay Health Units assumed responsibility for home care in these communities. At this time 48 centres and 94 districts receive service representing 84 per cent of the population in Provincial health units, and, in addition, the Victorian Order of Nurses provides home nursing service in the

metropolitan areas of Greater Vancouver and part of Greater Victoria and in a part of the Boundary Health Unit. Home nursing service is therefore available to 92 per cent of the population in British Columbia.

Within this programme, emphasis has been given to continuity of care through close liaison with local hospitals and private physicians. A designated public health nurse routinely visits the local hospital to obtain information on patients about to be discharged so that continuing care and follow-up can be arranged. Needed community resources are co-ordinated for the use of the patient by health unit staff, generally the public health nurse. Such services include social welfare, speech therapy, occupational therapy, homemakers, physiotherapy, National Employment Service, etc., and the public health nurse, in caring for the patient at home, works under the direct orders and in the closest liaison with the family physician. A part-time senior physiotherapist was employed in the South Okanagan Health Unit to provide the necessary consultation to the staff in rehabilitation nursing. Arrangements have also been completed with the Canadian Arthritis and Rheumatism Society for utilization of one of their physiotherapists on a regular basis in the Northern Interior Health Unit. During the year, discussions have been held with representatives from the Department of Social Welfare, and it is hoped that some encouragement can be given to communities throughout the Province to develop homemaker services, which have proved to be of tremendous value in terms of keeping the patient at home, thereby saving expensive hospital care or, alternatively, of keeping family and home together if the patient, generally the mother, has to be admitted to hospital.

Home nursing services were provided for 2,725 patients, an increase of 38 per cent over last year, requiring a total of 47,090 visits. About 24 per cent of these patients were discharged from hospital, and, as in the past, approximately 80 per cent are over the age of 60 years.

Educational courses for EXPECTANT PARENTS are conducted by public health nurses on a regular basis in 58 of the larger population centres. In these classes, parents have an opportunity to learn about the physical and emotional changes associated with pregnancy, and during the year 2,107 new mothers and 580 fathers attended some 12,630 classes, an increase of 20 per cent in the number of fathers who attended and amounting to 11 per cent of the total births. Considerable thought has been given to the time spent by the public health nurse in conducting these classes, and it is felt that with increasing demands from other programme areas, some benefit could be obtained by reducing the total number of classes held in each course and allowing greater flexibility of content geared to the special needs of each group.

When MOTHER and INFANT return home from the hospital, the public health nurse visits with them, and a total of 38,700 visits to 19,350 infants was made during the year. A further 35,000 home visits were made in connection with pre-school children and, apart from all this activity in the home, mothers continued to attend at child health conferences, so that 13,700 infants and 6,160 pre-school children were enrolled at these conferences where the public health nurses held 54,200 interviews with parents concerning their infants and 67,100 in regard to the pre-school child.

Following experience gained with the modified SCHOOL HEALTH PROGRAMME over the past three years, further minor revisions were made and emphasis continues to be placed on the identification of pupils with special problems and the channelling of community health services to those whose need is greatest. Recommendations were made to the Department of Education concerning medical rooms to be used by public health personnel providing service in schools and regard-

ing sickrooms used by pupils who become ill while in school. The public health nurse provides the vital link between school and family. Having access to the home, she can bring information of much value to the teacher and at the same time work with the family while the teacher works with the child. Services to students in the school increased, particularly in terms of individual services given by the public health nurse involving special health problems requiring continued follow-up. Such individual services totalled 276,500, representing a 61-per-cent increase over the previous year. This was associated primarily with the assumption by the public health nurses of responsibility for vision screening. In addition, teacher-nurse conferences increased 60 per cent to total 8,650, and 57,450 meetings with school staff were held during the year.

Table I.—Number of Schools and Enrolment by Type of School, June, 1965

Type of School	Vancouver		Victoria		Remainder of Province	
	Number of Schools	Enrolment	Number of Schools	Enrolment	Number of Schools	Enrolment
Grade schools—						
Public.....	234	127,955	86	33,396	1,090	218,784
Private.....	49	9,567	15	2,741	73	10,899
Kindergarten (public).....	79	5,607	19	1,652	69	3,658
Schools for retarded children—						
Public.....	3	277	2	45	6	132
Private.....	3	55	—	—	39	524

Table II.—Number of Pupils with Immunizations Up to Date on Entry to Grade I, September, 1964

Item	Vancouver	Victoria	Remainder of Province
Total pupils enrolled.....	13,087	3,698	25,110
Smallpox.....	(1)	1,987 (53.7%)	14,615 (58.2%)
Diphtheria, pertussis, tetanus, and poliomyelitis.....	(1)	2,180 (59.0%)	15,489 (61.7%)

<sup>1</sup> Figures for Vancouver not available.

Table III.—Number of Pupils in All Grades with Immunizations Up to Date, June, 1965

Item	Vancouver	Victoria	Remainder of Province
Total pupils enrolled.....	137,854	36,182	230,339
Smallpox.....	100,339 (72.8%)	27,969 (77.3%)	195,167 (84.7%)
Diphtheria.....	105,560 (76.6%)	30,239 (83.6%)	201,098 (87.3%)
Tetanus.....	103,967 (75.4%)	30,206 (83.5%)	199,438 (86.6%)
Poliomyelitis.....	125,413 (91.0%)	32,254 (89.1%)	210,641 (91.5%)

From June, 1964, to June, 1965, the enrolment in grade schools increased by 5,053 in the Greater Vancouver area, by 1,385 in the Greater Victoria area, and by 12,983 in the remainder of the Province. This represents an increase of approximately 3.8 per cent in the Vancouver area, 4.0 per cent in the Victoria area, and 6.0 per cent in the rest of the Province. The most notable increase in the number of

schools is in public kindergartens in areas served by the Health Branch. These have increased from 44 in 1964 to 69 in 1965. In schools for retarded children operated by Boards of School Trustees, the enrolment remains fairly constant. There has, however, been an increase of 47 pupils in schools operated by the Association for Retarded Children of British Columbia.

In September, 1963, the percentage of Grade I pupils up to date for immunization was lower than in the previous year. In smallpox vaccination the Victoria area was 10.4 per cent lower and the Health Branch area 3.6 per cent lower. For diphtheria, pertussis, tetanus, and poliomyelitis the decreases were 8.9 and 0.7 per cent respectively. It is hoped that the emphasis which has been placed on pre-school immunization this year will be reflected in the September, 1966, figures. The immunization status for school-children in all grades continues to be high in all areas of the Province and shows little change from previous years. Sabin poliomyelitis vaccine was included in the routine immunization schedule.

*Table IV.—Number of School Medical Examinations (All Grades), 1964/65*

Item	Vancouver	Victoria	Remainder of Province
Number of routine examinations by school medical officer.....	16,946	2,098	651
Number of routine examinations by family physician.....	(1)	1,268	3,012
Number of referral examinations by school medical officer.....	8,727	1,436	1,681

<sup>1</sup> Figure for Vancouver not available.

The number of routine examinations by the school medical officer is down slightly in all three areas this year. The number of examinations by the family physician has increased in the two areas for which it is reported. The number of referral examinations is up in the Vancouver area, has remained constant in the Victoria area, and is down in the rest of the Province. It would appear that the increased availability of medical care and services such as regional mental health clinics, speech therapists, and travelling clinics continues to reduce the number of referrals made to the school medical officer in Health Branch areas.

*Table V.—School Health Programme in Public Kindergartens, 1965*

Item	Vancouver	Victoria	Remainder of Province
Number of pupils enrolled.....	5,607	1,652	3,658
Total number of divisions.....	(1)	77	139
Number of divisions in which teacher-nurse conferences held.....	(1)	49 (63.6%)	114 (82.0%)
Number of pupils referred to public health nurse from conferences.....	(1)	35	291
Number of referral examinations by school medical officer.....	70	8	35

<sup>1</sup> Figures for Vancouver not available.

In areas served by the Health Branch, the enrolment in public kindergartens has increased from last year by 1,146 and is now 14.6 per cent of the Grade I enrolment as contrasted with 26.1 per cent for the Province as a whole. The disparity between the two metropolitan areas and the rest of the Province becomes less each year. Hearing and screening tests were made part of the regular service to kindergarten children.

Perhaps one of the most striking increases which takes place year by year in the work load of the public health nurse involves her activities in MENTAL

HEALTH. Each year for the past five years we have seen this work load increase by 1 to 2 per cent of total nursing time as psychiatric resources become more available at the local level. This year 12,130 home visits were made by public health nurses to patients with psychiatric conditions and the number of visits to adults has increased steadily to represent 43 per cent of the total. Liaison with psychiatric hospital treatment is improving, and nearly 200 patients were referred directly from hospital care. The number of visits to the mentally retarded increased to 2,400, representing a 39-per-cent increase.

Early identification of children having SPEECH AND HEARING problems continues to receive attention. It is especially important to identify the child with a hearing defect within the first 12 to 18 months of life. Due to her many contacts with infants and pre-school children, the public health nurse should be in a position to screen these children, and it is interesting that some 3,000 home visits were made to help parents with problems of this type, a 16-per-cent increase over 1964.

#### NUTRITION

To promote positive health, due regard must be given to adequate nourishment of the body. Encouragement of sensible attitudes toward food and of good eating habits form an important aspect of health education. Nutrition education is integrated in many phases of the work of the public health staff, and the nutrition service functions with this in mind to supply consultant advice by various methods, to include correspondence, health unit field visits, circulars, and the provision of reference material. Assistance has been given particularly with infant feeding, weight control, low-cost food budgets, and interpretation of diets for specific disease conditions. A Guide to Meal Service in Welfare Licensed Boarding Homes has been prepared and is available for distribution to the operators of these institutions. This reflects the increasing concern of health unit staffs with the operation of these personal-care homes.

In co-operation with the British Columbia Hospital Insurance Service, assistance both by correspondence and visits has been given to general hospitals and private hospitals, to include the design of hospital kitchens. The work of the Nutrition Consultant involves close liaison with other departments, to include Welfare, Education, and Agriculture, and with many agencies and institutions. In addition, many requests are received from the general public for information regarding food, nutrient values, and meal planning.

#### PUBLIC HEALTH ENGINEERING

ENVIRONMENTAL SANITATION in the broadest possible sense is the concern of this Division, and this requires a detailed knowledge of all community water supplies, sewerage systems, sewage-disposal methods, and stream pollution. Consultative and advisory services are given by the engineers working in conjunction with the medical health officers and public health inspectors in the field. They assist with the conduct of sanitary surveys and extend various advisory services to municipalities, consulting engineers, and private citizens. Considered in a little more detail, they become involved in a wide variety of subjects, to include subdivision approvals, slaughter-houses, shellfish, private drinking-water wells, septic-tank systems, control of watersheds, fluoridation, and many others.

During the year the greatest percentage of their time was spent in reviewing plans and specifications of public water and sewerage works proposed for construction throughout the Province as required for approval under the *Health Act*. Many

submissions were found to be incomplete or below reasonable standards, which necessitated considerable correspondence with the design engineers. As population and industry increase in the Province, water supplies are becoming more and more polluted despite steps taken to minimize this pollution. As time passes, an increasing degree of treatment will be required for supplies taken from rivers and other unprotected sources. Meanwhile communities in general continue to make progress by extending sewer-mains and improving sewage-treatment facilities. It is apparent from their efforts that the people of British Columbia are most concerned about pollution of natural waters and are willing to pay for the necessary means by which pollution can be abated. Again this year the greatest progress was made in the Lower Fraser Valley.

The Pollution-control Board requested public health comments and recommendations on each application submitted to them for a pollution-control permit, and the field staff in the health units co-operated extremely well to supply excellent information relative to the public health aspects of these applications. A programme of sampling sewage-treatment plant effluents and industrial waste discharges started to gain momentum during the year, with some health units showing more activity than others. The Provincial Division of Laboratories was able to handle a greater number of samples, and in some cases the sample results together with a sanitary survey were presented to the Pollution-control Board when public health efforts of persuasion failed to get results.

Considerable progress was made during the year by the engineers in an attempt to work more closely with municipal officials and water and sewage-plant operators. The staffs of the local health units have been involved, and thereby find themselves closer to the problems and their solutions so that both levels of service are unified and strengthened. It is believed that this team effort has gained the confidence of the municipal officials and their co-operation in the planning, construction, and operation of community water and sewage works. A study of the waters in the Okanagan Valley was started in October in co-operation with the Division of Laboratories and the staff of the local health units. The programme began an examination of the present water qualities in order to facilitate a comparison with an earlier study carried out in 1938 and thereby to establish the rate at which the waters are maturing (eutrophication). This analysis should be completed over the next two years.

The engineering staff took an active part in the education of public health field staff and of waterworks operators; most of these activities took place at short courses held at the University of British Columbia. They have also been invited to speak to professional groups, such as the Engineering Institute of Canada.

As mentioned earlier, the role of the public health inspector is changing as he accepts additional responsibilities in the newer areas of factory inspection, pollution control, and subdivision inspection. During the year a detailed survey of swimming-pools was carried out to compare the conditions presently existing with standards presently recommended. The major deficiencies noted were lack of adequate supervision and of life-saving equipment conveniently located for immediate use and unacceptable standards in the clarity of the water. These represent a special danger, particularly to children, and drownings have occurred which might readily have been prevented.

The public health inspector must continue with a large volume of routine work, to include food-handling, garbage disposal, sewage- and water-plant operation, and the abatement of nuisances, many of which are occasioned by malfunctioning septic tanks.

The subdivision of land for urban development has continued at a rapid pace. Approving officers refer proposed unsewered subdivisions to the medical health officer for an opinion as to the suitability of the soil to absorb septic-tank effluent. Many subdivisions lack both sewers and water. Urban developments lacking both these utilities invariably cause serious sanitation problems. Standards for subdivision have been considered by an interdepartmental committee on a two-stage development process—firstly, prior to the approval and, secondly, approval of the private sewage-disposal system at the building stage.

Camp-ground Recommended Standards were distributed to all health units as a guide to the development and operation of temporary accommodation for holiday-makers in trailers, cabins, and tents. The Standards also apply to summer camps established for children and adults licensed by the Welfare Institutions Licensing Board. Yearly licences, issued by the Board, are subject to the approval of the medical health officer. Mobile-home Park Recommended Standards similar to those already adopted in community planning areas have been made available to all health units whose basic concern is to assure safe water and adequate sewage and waste disposal.

#### SHELLFISH PROGRAMME

For the past three years the bacteriological quality of shellfish-growing waters, particularly as regards oyster culture, has been the subject of interest and review by a Federal interdepartmental shellfish committee, the Pacific Coast Shellfish Committee, and, more recently, the West Coast Federal-Provincial Committee. Prior to 1963 bacteriological studies on British Columbia shellfish were extremely limited, and the work that was done centred mainly on sanitary surveys with relatively favourable findings.

In 1963 and 1964 the studies were stepped up, and results led to reclassification of approved shellfish-growing areas, so that 14 per cent of these were restricted during 1963, 8 per cent in 1964, and a further 9 per cent in 1965. The principal growing areas of Ladysmith, Sooke, Comox Harbour, and Boundary Bay were the most adversely affected, and due to these restrictions and despite the approval of 14 new leases during the past year to total 130 acres, the net drop in approved growing areas amounts to 350 acres. As a result, the gross value of oyster production has dropped approximately 13 per cent, and shucking- and packing-plant registrations dropped from 35 in 1964 to 27 this past season. Throughout this period there has been the ever-present possibility of decertification of British Columbia-grown shellfish as an export product, primarily to the United States.

During the past year Health Branch efforts have been devoted toward the recovering of the loss of the most productive of the oyster-growing areas. Health unit staffs are carrying out field investigations to identify the environmental factors allegedly responsible for these restrictions, and monthly sampling of growing-waters and shellfish meats has been initiated, with the Provincial Health Branch laboratory carrying out the necessary tests. It is proposed that the Regulations for the Sanitary Control of the Shellfish Industry be amended so that seasonal oyster-harvesting in presently restricted areas may be permitted under controlled conditions and to provide specific bacteriological standards of shellfish meats in order not only to control but also to promote the shellfish industry in British Columbia. The United States Public Health Service has been invited by the Department of National Health and Welfare to review the British Columbia shellfish programme in January, 1966.

The problem of toxicity in clams, which led to a ban on the collection of butter clams for commercial purposes in 1963 and applies to the northern area between the tip of Vancouver Island and the Alaska Border, continues to prevail. Thirty-six

per cent of the routine samples obtained in the coastal surveillance programme did not meet international standards of acceptability, compared with 25 per cent in 1964. Despite the strategic surveillance programme and the significant progress made in the development of measures to control this unusual toxic material, an unfortunate incident occurred in Theodosia Arm, Georgia Strait. Five persons who consumed clams were stricken with paralytic shellfish poisoning and one died. The incident was classified as a strictly local flare-up in which all species of shellfish were toxic at the time of onset and the flare-up subsided within a few days.

#### MOTOR-VEHICLE ACCIDENTS

Collaboration continues with the Motor-vehicle Branch in developing a variety of projects designed to reduce the number of motor-vehicle accidents in British Columbia. These include a third revision of the Physician's Guide in Determining Fitness to Drive a Motor-vehicle, the preparation of an improved Physician's Medical Report Form, and in January, 1966, the Motor-vehicle Branch will start placing all known information on licensed drivers' medical defects into their computerized record systems where this information may be correlated with the driver's accident record. In this way, studies can be carried out on the relationship between known physical disabilities and motor-vehicle accidents, and this may lead to a better knowledge of medical defects which make it dangerous for a person to drive. Conversely, studies of this type may well lead to a better understanding of the defects that motorists may have and still drive with safety.

A joint study of freeway traffic accidents is being planned in which Health Branch, Motor-vehicle Branch, Royal Canadian Mounted Police, and the Traffic Safety Committee of the British Columbia Medical Association will participate. In this study, consideration will be given to such matters as the relationship between age, speed, medical defects and freeway accidents, and also some consideration of the nature and manner of the injury as these factors relate directly to the design of the vehicle.

The Health Branch continues to act as medical consultant to the Motor-vehicle Branch and has reviewed many medical report forms submitted by private physicians while working closely with the British Columbia Medical Association's Traffic Safety Committee and with the committees of the American Medical Association.

#### EMERGENCY HEALTH SERVICES

During the year a start was made in rewriting the Emergency Health Services Plan for British Columbia, which is now somewhat outdated. Meetings were held with those voluntary health agencies within British Columbia which would assume key roles in the event of peacetime disaster, to include the Canadian Red Cross, St. John Ambulance, Mennonite Church, and others. At these meetings, individual areas of responsibility were clarified and the groundwork was laid for a co-ordinated plan of action in the event of a natural disaster. In this connection the Federal Emergency Health Service has now agreed that its supplies, which the Health Branch is pre-positioning in strategic locations throughout the Province, can now be used in peacetime emergencies, although it will still be necessary to secure individual release from Ottawa on each occasion.

With regard to pre-positioning of emergency medical units, hospital disaster units have been placed in 48 hospitals, each of which has submitted a hospital disaster plan that has been approved by the Emergency Health Services. Plans from seven other hospitals are being studied at this time, and each pre-positioned unit is

now being inspected and the supply of blood expander replaced. Twelve Casualty Collecting Units have been prepositioned in locations selected primarily for strategic purposes in the event of a wartime emergency. Three additional units have been sited in areas where it is felt they might be useful in a peacetime disaster, and a large number of additional units are available to any community interested enough to produce specific plans for their uses. There are now 16 operational Advanced Treatment Centres in suitable locations, and it is hoped to place additional units in Princeton and Vernon next year. It has proved impossible to find a suitable and safe location for an Advanced Treatment Centre in Squamish, but it is felt that this is an important location, and it may be necessary to undertake new construction there. It is planned to seek an additional quota of Advanced Treatment Centres just as soon as the last three of our first quota have been pre-positioned. One emergency hospital is pre-positioned west of Victoria, and arrangements are being completed to place two other units—one in the new hospital in Duncan and the other in White Rock.

New training equipment for Emergency Health Services was received during the year, to include 10 litter packs containing the items needed to train casualty collecting teams, and these will be pre-positioned in each Civil Defence Zone. Five casualty care training kits containing the material necessary to train Advanced Treatment Centre teams have been received and will also be pre-positioned as above. A large stock of casualty simulation supplies are now available, so that a casualty simulation training programme can be realistically carried out. A third truck has been purchased and equipped, and will be pre-positioned in Kamloops, while two other trucks are stationed at Duncan and Abbotsford respectively. These trucks are primarily intended to transport Advanced Treatment Centres for a Province-wide training programme, but are also equipped so that they can be used as 12-passenger ambulances to transport injured people from an Advanced Treatment Centre to a hospital. A security committee, consisting of a health supplies officer, a representative from the Narcotics Division of the Department of National Health and Welfare, and a representative from the Royal Canadian Mounted Police, has been formed and has visited all the emergency health supply storage sites to check their suitability for the storage of narcotics.

#### RESEARCH

It is an old axiom that no business or service can stand still. There is, in fact, no such thing as maintaining the status quo. If a health service does not progress, it must inevitably retrogress. Studies and research can make available data which can be used in many ways to include the evaluation and subsequent improvement of individual programmes, to identify problem areas and gaps in service, to reduce inefficiency, and to improve effectiveness within existing limitations of money, staff, and time. In turn, this will lead to improved morale and stimulation with satisfaction on the job.

Apart from the continuing and almost routine evaluation which goes on month in and month out utilizing the quantitative time-study approach to the work of the public health nurse and public health inspector, certain more specialized studies were carried out during 1965 to include one involving six health units and 36 public health nurses, attempting a qualitative analysis of the public health nursing service. This study was patterned after those developed by the United States Public Health Service on "Patient Progress" and was continued during the first six-month period of the year. In the field of mental health, a smaller pilot study was completed as the forerunner of a major study which will commence early in 1966 to determine the type of services given by health unit staffs to mental health patients. This study will

exclude general health counselling and guidance, which is part of the preventive programme. It is hoped that from this, information will be provided on the number of patients receiving service, the amount of time involved, data on whether the patient referral was from a mental health clinic, psychiatric hospital, private psychiatrist, or selected by the public health nurse. It is hoped that this will permit a cost analysis of the programme to be carried out when results are to hand.

A detailed survey was completed by public health inspectors throughout the Province on public and semi-public swimming-pools. This survey compared the conditions of the pools with the standards that have now been recommended, and certain major deficiencies were noted which hopefully can be corrected and avoided in future.

In connection with the Rheumatic Fever Prophylaxis Programme, a number of health officers have been concerned over the numbers of children in their areas who are on the programme but who do not appear to take their prophylactic penicillin regularly. This potential slip 'twixt cup and lip will be investigated in more detail during the coming year.

A study commenced two years ago throughout the Province was continued to determine the minimum dose of gamma globulin which can be shown to be effective in preventing the onset of infectious hepatitis. This study is important from an economic point of view since gamma globulin is expensive, and if half the recommended doses proves adequate, considerable dollar savings can be achieved.

Concern with the possible permanent effects on human health resulting from repeated exposure to commonly used pesticides has been expressed by many agencies, and preliminary discussions and planning have recently been carried out, aimed at developing a long-term study planned as a joint project between the Divisions of Epidemiology and Occupational Health within the Health Branch. Specimens obtained will be examined at the Pesticide Laboratory of the Department of Agriculture. Discussions have been held with scientists from the United States Public Health Service who are carrying out a similar study south of the border, and a National Health Grant has been requested to conduct this study over a period of years in the Okanagan Valley involving both the North and South Okanagan Health Units. The initial stage will consist of a random sampling of human fat tissue and mother's milk for stored chlorinated hydrocarbon pesticides, and this, it is hoped, will permit better selection of subjects for future intensive investigation of chronic effects and will also permit of comparisons between pesticide storage in the human body in the Okanagan Valley and other areas at a later date. A pilot study is presently being conducted in the West Kootenay Health Unit area, utilizing the Northern Interior Health Unit as a control.

As many people are aware, antibiotics are now added to animal-feedstuffs in very large amounts on an almost routine basis. This has given some cause for concern and may present certain hazards to human health if continued in a haphazard routine fashion over many years. Personnel in the Health Branch have been asked to join a committee of the British Columbia Medical Association to conduct a study into this matter.

Other studies continue within the framework of the school health programme and into the work load of the clerical staff in health units. Once again the Division of Preventive Dentistry has shown itself to be particularly active in research, as has been reported earlier.

## PUBLICATIONS, 1965

(Prepared by personnel, Bureau of Local Health Services.)

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- "One Year Effect of Supervised Toothbrushing with an Acidulated Fluoride-Phosphate Solution," J. Canad., D.A., April, 1965, by D. C. T. Bullen, F. McCombie, and L. W. Hole.
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- "The British Columbia Rheumatic Fever Prophylaxis Programme," B. C. Medical Journal, March, 1965, by A. A. Larsen, L. W. Hole, and B. Mackenzie.
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- "Accidental Deaths among British Columbia Indians," accepted for publication, C.M.A. Journal, by N. Schmitt, L. W. Hole, and W. S. Barclay.
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## REPORT OF THE BUREAU OF SPECIAL PREVENTIVE AND TREATMENT SERVICES

As in the past years, the Bureau operation has included the Divisions of Tuberculosis Control, Venereal Disease Control, Laboratories, Occupational Health, and Rehabilitation Services. All of these divisions have experienced an expansion in their operations during the year.

The Division of Tuberculosis Control has this year experienced only a very slight reduction in the need for hospital facilities for tuberculosis patients, there being 161 patients in hospital in November, 1965, as opposed to 163 a year ago. However, the need for out-patient care continues to increase, and great importance has been attached to this aspect of the tuberculosis-control programme as well as to the case-finding surveys. In addition to the tuberculosis-control programme, the Division now operates three wards at Pearson Hospital under the extended-care programme now covered by British Columbia Hospital Insurance Service. A fourth ward of 44 beds is presently being renovated, to bring a total of 174 beds under this programme in addition to the Poliomyelitis Pavilion previously covered. The year 1965 also saw the final closure of the Marpole Infirmary, when all the patients accommodated there were moved to Pearson Hospital.

In the venereal-disease programme a full-time director was appointed on April 1, 1965. An extensive structural renovation of the area occupied by the Division of Venereal Disease Control in the Provincial Health Building has been planned with the Department of Public Works in order to provide more effective and efficient management.

The occupational health programme was extended during the year by the addition of a radiation inspection technician because of the increased use of ionizing radiation in the Province. Since April 1, 1965, the Director of the Division has been able to devote his full time to occupational health activities, and is also now providing consultative services to the Factory Inspection Branch in the area of industrial hygiene.

The Division of Laboratories has, as in past years, increased its services to the public. Plans are under way to acquire more space so that the necessary equipment and staff can be adequately housed, thereby meeting the increased demands on the service. The Division has been actively participating in the water- and air-pollution programme and will be expanding its service in this connection as well as in the field of virology.

### VOLUNTARY HEALTH AGENCIES

The Health Branch provides an annual grant to a number of voluntary health agencies. Each of these agencies submits an annual budget and financial statement as well as an annual report to the Bureau. A brief summary giving the highlights of the main activities of each agency is included in this report.

### BRITISH COLUMBIA CANCER FOUNDATION

During the fiscal year 1964/65, 1,743 new patients were admitted, and a total of 98,657 examinations and treatments were carried out. The construction started in January, 1965, was completed during the year, providing the necessary space for a Province-wide cytology service, clinical laboratories, and for clinical investigations and research projects. Plans for the year 1966 include the construction of an extension to the radiotherapy department to provide space for additional cobalt treatment units at an estimated cost of \$180,000. The Foundation's institute in

Vancouver has also continued its consultative services to 13 clinics throughout the Province, with consultants from the institute making 85 visits to these clinics and providing service to 151 new patients as well as 3,861 follow-up examinations. In Victoria 370 new patients were treated, and 21,131 examinations and treatments were carried out in the clinic.

Also during 1965 the Foundation's in-patient care unit in Vancouver was formally recognized as a hospital facility, and 36 beds were brought under British Columbia Hospital Insurance Service coverage, an additional 18 beds on the third floor being opened for patient accommodation.

#### BRITISH COLUMBIA MEDICAL RESEARCH FOUNDATION

Since 1959 the British Columbia Medical Research Foundation has maintained the same level of support of medical research in the Province, largely because of the Provincial Government annual grant of \$20,000. Administrative expenses are less than \$2,000 annually. In 1965 the Foundation made grants totalling \$26,625, including six grants to research workers at the University of British Columbia and one at the University of Victoria.

#### G. F. STRONG REHABILITATION CENTRE

The primary purpose of the Rehabilitation Centre is to assist disabled children and adults on an in-patient and out-patient basis through an integrated programme of medical, psychological, social, educational, and vocational evaluation under competent professional supervision. In the past year 261 patients were admitted to the programme and 290 were discharged, with 108 under treatment at the end of the year. Of the people admitted, approximately 64 per cent are between the ages of 20 and 59. Of 104 severely handicapped patients 55 or over, 50 per cent were retrained to complete ability.

#### MULTIPLE SCLEROSIS SOCIETY OF BRITISH COLUMBIA

The chief aims of the Society are to administer financial and other aid to multiple sclerosis patients throughout the Province.

The patients' aid programme is financed by the Provincial Government from the money made available through grants and is exclusively used to meet the medical needs of the patients. Other financial assistance is received from the various United Appeals and from private supporters of the programme. At the end of the year there were 533 patients listed with the Society. This included an increase of 83 in the last year.

#### CANADIAN ARTHRITIS AND RHEUMATISM SOCIETY

In 1965 over 6,000 patients were referred by 800 doctors to CARS medical and ancillary staffs for consultation or treatment. Recognizing the preventive value of treating patients while still ambulant, CARS arranges transportation to the 62 locations, mostly in community hospitals, where out-patient facilities are provided and the Society's staff physiotherapists give treatments.

Twice each year the travelling consultants, the mobile occupational-therapy van, and the supervising physiotherapists visit and consult with the doctors, hospitals, public health and CARS staffs throughout the Province. Self-help aids and home adjustments designed by the occupational therapist are constructed in CARS workshop or by volunteers.

CARS has been active in promoting measures such as the changes in the National Building Code, the building of a long-term activation unit at a major teaching hospital, and the establishment of adequate therapy units in all local hospitals.

#### BRITISH COLUMBIA EPILEPSY SOCIETY

The Society's chief emphasis in the past year has been in providing direct aid to epileptics requiring treatment. The Society expended nine times as much money on direct aid in the past year as it had in the year before. Attempts were made to broaden the financial aids by making appeals to various service clubs and individuals. This has been relatively successful and should prove more effective next year. Activities in the field of public education were greatly increased by adding and distributing new brochures and pamphlets. The goal of the Society is to meet the needs of numerous epileptic citizens in British Columbia.

#### BRITISH COLUMBIA HEART FOUNDATION

The Provincial Government again extended its interest and support to the British Columbia Heart Foundation. The past year's campaign was also financially successful in that the total receipts were approximately \$17,000 higher than in the previous year. This increase has been largely due to the growth in the voluntary groups throughout the Province. Research has been extended during the year, and in particular one can mention the hyperbaric oxygenation chamber that was installed in the Vancouver General Hospital to aid in research in heart surgery. Because of its originality and lack of precedents, many unforeseen costs were encountered, but a fine community effort resulted in the completion of the installation. The Foundation has also been able to increase its activities in the field of community service. In this effort there was a close and cordial relationship between the local health services and the Foundation in carrying out the various community projects.

#### CANADIAN CYSTIC FIBROSIS FOUNDATION

The British Columbia Division of the Cystic Fibrosis Foundation has now been functioning for five years, and in the past year the Provincial Government has assisted by providing monthly grants. The programme is closely co-ordinated with the work of the British Columbia Society for Crippled Children, who have been of great assistance to the Foundation. The objective is to discover all sufferers of this disease in the Province and to improve treatment techniques.

#### NATIONAL HEALTH GRANTS

This year was the 18th year of the operation of the National Health Grants programme, which is administered between the Federal and Provincial Governments. These grants-in-aid are made available to the Provinces and Territories to assist in the development, improvement, and extension of health services for the people of Canada.

In 1948/49 a total of approximately \$2,500,000 was made available to British Columbia, and in 1965/66 the total was slightly more than \$7,800,000. This was made available in nine grants, as follows: Professional Training, Hospital Construction, Mental Health, Tuberculosis Control, General Public Health, Cancer Control, Medical Rehabilitation and Crippled Children, Public Health Research, and Child and Maternal Health.

The grants were used to establish new health services or to extend existing services in official health agencies and related organizations. An important feature was the assistance given to professional training.

## LABORATORY ADVISORY SERVICES

The Laboratory Advisory Council and the Health Branch's Technical Supervisor of Clinical Laboratory Services, who acts as secretary to the Council, were involved in many programmes to enlarge and improve diagnostic facilities throughout the Province.

A pathologist was appointed to develop a regional service in the Skeena area, including hospitals in Prince Rupert, Terrace, and Kitimat. The work loads increased in all seven regional laboratories, and additional pathologists were approved for three of these hospitals.

A study of the impact of automated equipment was commenced. One hospital applied for grants to obtain equipment to develop a programme for automation, the purposes being to control the annual spiral of laboratory operating costs, to decrease patient stay, and to develop a pattern of laboratory medical practice more beneficial to patients than is presently possible. A sub-committee of the Laboratory Advisory Council advised the British Columbia Hospital Insurance Service on all applications requesting grants on diagnostic laboratory equipment. Another sub-committee on laboratory planning was active in making recommendations for plans for new or enlarged laboratories in approximately 20 hospitals.

The technical supervisor acted on the advisory committee for the medical laboratory technologists' training programme at the British Columbia Institute of Technology. The "block" system of teaching, which was used for the first class at the Institute, did not prove satisfactory, and the curriculum was changed to allow more integration of subjects. A study of the number of technologists required by 1970 was undertaken. This indicated that twice the number of students must be trained if the supply is to meet the demand. Plans to enlarge training facilities at the Institute were recommended, and a more intensive recruitment programme was proposed.

Postgraduate training courses for technologists included the continuation of the correspondence course in clinical chemistry sponsored by the Department of Continuing Medical Education in conjunction with the Department of Pathology of the University of British Columbia and the Eighth Annual Postgraduate Course in Medical Laboratory Technology, which was held in Kamloops during the last week in May. Requests for courses in other disciplines were received, and discussions were held relating to an advanced course in microbiology to be held at the Institute next spring.

## REPORT OF THE DIVISION OF TUBERCULOSIS CONTROL

During 1965 the trends previously recorded were again evident. There was a further reduction in the bed occupancy by tuberculous patients, indicating the continued success of the treatment programme. Only a decade ago the treatment programmes demanded most of our resources. At the present time the various aspects of case-finding, such as community tuberculosis surveys and contact-tracing, and the supervision and follow-up of the known and previously treated cases of tuberculosis in the community have taken precedence in the over-all programme of tuberculosis control. This has led to increased activity and called for expanded out-patient clinical services.

### COMMUNITY TUBERCULOSIS SURVEYS

The community surveys have been proceeding rapidly toward their objective of providing combined tuberculin testing and X-ray surveys throughout the Province. This type of survey was begun in 1957, and with the completion of a survey in the East Kootenay area in the fall of 1965, all the outlying areas of the Province have been surveyed. Only Metropolitan Victoria, North and West Vancouver, and South Burnaby remain to be done for the completion of this work. This service has been of an intensified nature and has been called "Operation Doorstep" because of the fact that each community was done on a block-by-block basis and the survey was brought to practically every person's doorstep. To do this required highly developed organizational techniques and the utilization of large numbers of volunteer workers in each community, the participation of whom went a long way toward the success of the surveys. The organizational and promotional parts of the surveys were carried out by the British Columbia Tuberculosis Society and represented a very significant contribution toward the success of this work. During 1965, community tuberculosis surveys were also carried out in the Powell River-Sechelt Peninsula area, Central Vancouver Island Health Unit area, and on Northern Vancouver Island. The latter area proved particularly challenging from a point of view of logistics and transportation, but very satisfactory results were accomplished and the service was brought to even the most remote communities. The survey team completed the work for the year in the Upper Fraser Valley Health Unit area, with surveys being conducted from Boston Bar to Chilliwack. The surveys included the personnel and dependents at the military camp in Sardis.

The programme of community surveys includes repeat examination one year later for positive tuberculin reactors with negative chest X-ray on the original examination. Such surveys were held this year in the Vancouver area, as well as in the West Kootenay and Selkirk Health Units area.

The number of examinations done in the various areas was as follows:—

#### *Community Tuberculosis Surveys*

Coast-Garibaldi Health Unit .....	15,389
Boundary Health Unit .....	11,739
Upper Fraser Valley Health Unit .....	13,734
Central Vancouver Island Health Unit .....	26,060
Upper Vancouver Island Health Unit .....	5,690
East Kootenay Health Unit .....	30,672
	<hr/>
Total .....	103,284
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*X-ray Survey of Positive Reactors from 1964*

Metropolitan Vancouver .....	26,692
Selkirk Health Unit .....	1,794
West Kootenay Health Unit .....	3,966
	<hr/>
Total .....	32,452
	<hr/>
Grand total .....	135,736
	<hr/> <hr/>

## HOSPITAL ADMISSION CHEST X-RAY PROGRAMME

Previous reports have indicated that there has been a falling-off in the miniature chest X-rays taken in the general hospital admission chest X-ray programme. It has always been felt that this is a valuable programme because of the fact that many unknown cases of tuberculosis are admitted to general hospitals. The admission chest X-ray programme has been valuable in that it is not only a good case-finding method, but it also identifies cases of tuberculosis that would otherwise be a hazard to the staff caring for them if they were unknown. In recent years the trend has been that more and more patients admitted to general hospitals were examined with standard-size X-ray plates, and this is quite satisfactory. It is to be hoped that this will continue and increase.

There is also an increasing trend on the part of the general hospitals to find that they are becoming short of space and, as a result, are requesting that the miniature X-ray equipment be removed. This has happened in several general hospitals during the past year. While these hospitals can continue to carry out a chest X-ray programme for in-patients by taking standard-size chest X-rays, it does create a problem in that these hospitals also provided for taking chest X-rays of out-patients, and this was a very valuable service in the follow-up of contacts and suspects throughout the Province. It is therefore proposed that when the miniature chest X-ray equipment is being removed from general hospitals that it be placed in the health units so that the service to out-patients can continue.

At the beginning of the admission chest X-ray programme about 15 years ago, both the equipment and the cost of the service were paid for through National Health Grants. During the year, National Health Grant assistance was withdrawn, but it was possible to maintain the programme with the British Columbia Hospital Insurance Service continuing to pay the cost for in-patients and the Division of Tuberculosis Control paying for the cost of out-patients.

## IN-PATIENT TREATMENT SERVICES

There was only a slight reduction in the number of patients under treatment in sanatorium at the end of November, 1965, as compared with one year before—161 patients as compared to 163 patients. Over the previous 10 years there has been an average reduction of 15 per cent in-patients under treatment, so that the present figure may indicate that a plateau has been reached, and we may be approaching the hard core of the tuberculosis problem in the community, as a result of which further reduction in the number of patients needing sanatorium care may be somewhat slower than in the past. However, as a result of redistribution of patients and the allocation of all female patients to Willow Chest Centre, it was possible to further reduce the number of beds for the treatment of tuberculosis by closing a ward at Pearson Hospital. The total number of beds now operated by the Division of Tuber-

culosis Control for the treatment of tuberculosis patients stands at 179, as compared with 225 at the beginning of the year. Of these beds, 86 are at Pearson Hospital and 93 at Willow Chest Centre. Those beds released at Pearson Hospital, which represent one complete wing, are being assigned to supplement the continuing-care beds already in operation at that institution.

*Patients in Sanatorium*

Date	Total Sanatorium Population	50 Years of Age and Over	Per Cent 50 Years of Age and Over
November, 1952	838	276	32.9
November, 1955	615	251	40.8
November, 1958	332	189	56.9
November, 1961	244	128	52.5
November, 1964	163	100	61.3
November, 1965	161	119	73.9

The above table indicates a very significant problem in tuberculosis control today in that the disease has become a problem of the older person rather than the younger. Of 161 patients in sanatorium at the end of the year, only 42 were under 50 years of age. It will be seen that the percentage of persons 50 years of age and over has gradually increased and more than doubled in the last 12 years. This group now represents almost three-quarters of the sanatorium population. Ten per cent of the sanatorium population is actually over 70 years of age. Some of these older patients represent newly developed tuberculosis, but the great majority of them represent cases who have carried the seeds of this disease most of their lives, only to break down in their later years. This is not a new phenomenon, but stands out more clearly now that the incidence of disease in the younger persons has been significantly reduced. The ratio of female to male patients in sanatorium remains about the same, and there were only 37 females in the sanatorium population as compared with 124 males.

In spite of the reduction of patients in sanatorium, the bed turnover remains high. This reflects the fact that the period of sanatorium treatment has been greatly reduced and the patients' stay shortened. This has become possible through the use of the tuberculosis antimicrobials which are so effective in the treatment of the disease. Admissions to Pearson Tuberculosis Hospital and Willow Chest Centre in 1965, excluding review cases and transfers, totalled 344, of which 241 were first admissions and 103 readmissions (preliminary figures). This compares with 360 admissions in 1964, of which 256 were first admissions and 104 were readmissions. In 1956 there were 924 admissions, of which 35 per cent were readmissions. During the last calendar year there were 17 admitted to sanatorium for treatment of non-pulmonary tuberculous conditions, other than pleurisy. This amounted to 4.9 per cent of the total.

#### OUT-PATIENT CLINIC SERVICES

With the changing trends in tuberculosis control brought about by the success of the treatment programme through use of tuberculosis antimicrobials, the clinical services of the Division have become the most important part of the work that is being carried out and have replaced the sanatorium services in this respect. This trend has been developing for many years, and while the sanatorium services were diminishing, the clinic services have been expanded to cope with the need to supervise increasing numbers of patients outside of sanatorium and to provide closer

supervision than was indicated in the past. The length of stay in sanatorium has been greatly reduced for all forms of tuberculosis because of the fact that through the anti-tuberculous drugs the disease is quickly brought under control in sanatorium, but this same treatment is continued for long periods of time while the patient is at home or even has returned to work. The average stay in sanatorium is under six months, whereas the total length of treatment is a period of two years. During this time careful clinical follow-up is necessary, and, indeed, out-patient therapy is impossible without this control. There are approximately 1,000 cases of tuberculosis on out-patient therapy at the present time throughout the Province, and clinical services must be brought to all of these patients.

These services are provided through stationary clinics in the larger centres of the Lower Mainland and Vancouver Island, whereas the services are provided by traveling clinics in all other parts of the Province. There are approximately 16,000 known cases of tuberculosis in British Columbia, not including Indians, which number almost 5,000. While most of these cases have been treated and are inactive, they require continued follow-up because of the well-known tendency for tuberculosis to relapse. While this relapse rate has been declining, it still represents one-half of 1 per cent of this group each year. The diagnostic clinics and the physicians associated with them are responsible for the tuberculosis programme that is carried out in the various areas throughout the Province assigned to them. They work very closely with the local health authorities, and, in fact, they serve as advisors and consultants to them. The public health field service is a most essential element in tuberculosis control, and the programme in British Columbia is based on such a service which is well indoctrinated in tuberculosis practice and whose activities are well co-ordinated with the Division of Tuberculosis Control. Probably in no other place does this correlation of activities reach a higher degree of achievement or success than in this Province.

While the chief concern of the Division of Tuberculosis Control is with the problem of tuberculosis, mention should be made of additional benefits that accrue through the finding of many significant non-tuberculous pulmonary conditions that are discovered through examinations that are carried out in the diagnostic clinics. This is not a new observation, but its significance was pointed up quite dramatically following the large-scale tuberculosis survey in the City of Vancouver when the non-tuberculous findings were analysed in a special study carried out by the Department of Preventive Medicine of the University of British Columbia. Based on approximately 132,000 persons X-rayed, 115 cases of tuberculosis were found and approximately 400 others were discovered to have scarring on their lungs, previously unknown, which in the majority of instances was due to tuberculous infection, and which would need indefinite follow-up because of the fact that many might develop active tuberculosis in later years.

In addition, there were 929 cases referred from this survey because of non-tuberculous X-ray abnormalities of the heart or lung, and of these, 238 or 25.6 per cent represented very serious conditions. These included 28 diagnoses of carcinoma of the lung and 35 additional lung densities for which further investigation was indicated, as well as 25 cases where other tumours or masses were found in the chest. Cardiovascular disease was diagnosed in 82 cases, of which 70 were enlarged hearts and 12 were aortic aneurysms.

While this study was related to findings in Vancouver, it applies equally throughout the Province, and over the years many thousands of such conditions have been uncovered. Beyond the findings of these conditions, the Division of Tuberculosis Control, in co-operation with the local health services, has always

assumed the responsibility of reporting the findings to the family doctor, and if none is available an endeavour is made to have the patient referred for further examination by a hospital out-patient department or similar agency. This study showed that the majority of the patients did get to a physician or suitable agency and received adequate follow-up. However, it was found that 26.6 per cent of the patients did not see a physician and therefore did not have satisfactory subsequent investigation for their conditions. With the broadening concept of health services and the fact that a significant number of serious chest conditions which are treatable are not being directed into proper channels where they may receive attention, it seems indicated that the field health service and the Division of Tuberculosis Control should expand their responsibilities toward this group.

### CONTINUING-CARE PROGRAMME

Previous mention has been made of the fact that with the reduction in the number of tuberculosis cases at Pearson Hospital, approximately one-half the tuberculosis beds became available and were assigned to continuing care for patients of Allco Infirmary and Marpole Infirmary. This is in addition to the Poliomyelitis Pavilion, which has been in operation for many years.

The patient load in the Poliomyelitis Pavilion for the past year has increased slightly, and there have been almost 1,500 patient-days more than in the preceding year. Most of the admissions to this ward are now not chronic poliomyelitis, but neurological conditions requiring respiratory aid.

In 1964 the patients remaining at Allco Infirmary were transferred to Pearson Hospital, and the care of the patients at Marpole was assumed at approximately the same time. The changes in the ward and arrangements generally were completed for transfer of the Marpole patients in April of 1965, when all the patients remaining there were transferred. This transfer required very considerable planning and went off smoothly and without incident. The integration of the two staffs—Marpole and Pearson—was a difficult task and involved the Pearson employees taking over care of a group of patients requiring much heavier nursing duties than the tuberculosis patients, as well as teaching the Marpole staffs our techniques and routines. At the year's end there were 112 patients in the continuing-care wards at Pearson Hospital.

The Infirmary patients settled down very well in Pearson Hospital, and all of them seem very happy with the transfer. However, a number of problems presented themselves in that almost all the patients required physiotherapy and there was not sufficient staff or equipment to handle the additional load. This has been worked out quite satisfactorily by training staff members to assist the physiotherapists and by obtaining new equipment and additional space for these facilities. Considerable improvisation was necessary, but a very successful and expanded physiotherapy programme is being carried out, and the patients are benefiting greatly from this. The same situation occurred in respect to occupational therapy and again staff and equipment and space were the problems. However, this is being met, and all patients able to undertake any amount of this work are being encouraged to do so. From this it will be seen that the activation programme for these patients is being stepped up, and the patients are responding to this very well, both physically and mentally. All patients are being carefully assessed, and a more active medical and surgical programme is being instituted. Several of the patients have had orthopaedic surgery to overcome deformities that proved debilitating. Results of this have been very encouraging and have allowed these patients to become more mobile with increased possibilities of rehabilitation.

In addition, the institution which will probably be known as the Activities Centre is now nearing completion, and patients and staff are anxious to make use of its facilities. It will provide room for physiotherapy and occupational therapy, as well as generous space for patient entertainment and diversion. Space is also provided for the Women's Auxiliary.

The decision to admit continuing-care patients to Pearson Hospital immediately raised the question of deciding what type of patient would be accepted for treatment. It was decided that people should be admitted who could benefit most from the facilities available, having in mind that this includes a high standard of physiotherapy and occupational-therapy services as well as clinical services. To decide on merits of applications, a screening application committee was appointed, consisting of the Hospital Administrator, Director of Nursing, Director of Social Services, a staff physician, and the Medical Superintendent. All applications, when they are complete and accompanied by a social service report, are considered by this committee.

It is a pleasure to note that the Marpole Women's Auxiliary, which has made such a great contribution to the patients over the years, is going to continue as an auxiliary at Pearson Hospital, as well as continuing its activities at the G. F. Strong Rehabilitation Centre. Already the Women's Auxiliary has made a great contribution this year in donating approximately \$2,500 toward the purchase of physiotherapy equipment, wheelchairs, and special orthopaedic equipment.

The latest service by the Auxiliary has been to accept responsibility for arranging all the continuing-care patients' outside activities. This includes transportation to the exhibition grounds, parks, concert hall, etc., regardless of the people originating the plan. This is a good arrangement as they know the problems concerned with moving the continuing-care patients and the help and type of transportation needed, so that when groups, other than the Auxiliary, call and wish to do something for the patients, a committee, formed for this purpose, is called upon to give advice and often to provide help.

#### SOCIAL SERVICES

Since the Division of Tuberculosis Control was first formed, social service workers have been provided by the Social Welfare Department to carry out a programme of medical social service work within the Division. During the past year these social workers were transferred from the Social Welfare Department to the Division of Tuberculosis Control.

A social service programme is provided for tuberculous patients in Willow Chest Centre and Pearson Hospital, and includes out-patients as well. Consultation services are extended to Sunnyhill Hospital for the tuberculous children. Many problems arise with the poliomyelitis patients, and the work with the continuing-care patients includes not only the in-patients' problems, but also the processing of applications, which is frequently very involved.

The goal of the social services staff is to see all patients shortly after admission so that the need for help with personal or social problems may be assessed before the problem interferes with medical or surgical treatment. The problems of the physically handicapped and permanently disabled patients are frequently intensified by the nature of their disability: marital difficulties assume greater significance; inability to communicate (through aphasia, for instance) can lead to frustration; there is also frequently inability to adjust to prolonged hospitalization, especially when the patient mistakingly feels he is fit to be discharged. These situations call for special aid, which may include legal, welfare, public health, or community

assistance. The tuberculosis patients have a greater turnover, and their problems are aggravated by the disease being communicable. With both types of patients, their troubles become more acute when there is a young family and the necessity for housekeeping services or foster care must be considered. Where a change of job is indicated because of illness, the patient, often discouraged, may need stimulating to use the available educational and retraining facilities. In all cases the special skills of the social service personnel are employed in serving the patients' best interests.

The social services staff has been indebted to both public and private agencies and groups for their financial and personal assistance. Included in these agencies and groups were the Vancouver City Social Service, the various offices of the Department of Social Welfare, the Department of Veterans Affairs, the Municipal Chapter and the Captain Oates Chapter of the I.O.D.E., the Women's Auxiliary to the Paraplegic Association, the Marpole Women's Auxiliary, the Three R's, the British Columbia Tuberculosis Society, and the Rehabilitation Foundation of British Columbia.

The social workers' activities are summarized hereunder:—

	Nov. 1, 1964	Oct. 31, 1965
Number of patients involved .....	554	(407)
Interviews with patients .....	2,080	(1,119)
Interviews with relatives or friends .....	289	(161)
Interviews with professional disciplines .....	2,517	(1,660)
Interviews with other agencies .....	1,458	(779)
Letters on behalf of patients .....	572	(270)

(The figures in parentheses show the work done in the last seven months of the year and indicate the marked increase in volume that has occurred since the Infirmary patients were taken over.)

#### CO-ORDINATION WITH RELATED AGENCIES

While many Indians in British Columbia living off the reserves become the responsibility of the Division of Tuberculosis Control, the Medical Services Directorate of the Department of National Health and Welfare provides a tuberculosis-control programme for those natives that are the responsibility of the Federal Government. This programme is of the highest calibre and broad in scope, having proved most successful in controlling this disease, which used to be such a scourge amongst the native population. The tuberculosis services of the Provincial and Federal Governments work very closely together and have arranged for exchange of services whenever possible.

The Sunnyhill Hospital in Vancouver continues to provide treatment services for children suffering from tuberculosis. However, the need for such treatment has greatly diminished, and during the past year there were never more than 10 children under treatment at any one time.

There has been little change in the tuberculosis service that is provided at Riverview Hospital for the mentally ill, except that fewer patients are now under treatment in the North Lawn Building, which was originally built as a tuberculosis sanatorium on the grounds of the Provincial Mental Hospital. Whereas 10 years ago there were approximately 200 cases treated in this institution, this number has now been reduced to about 15, so that practically all of this hospital has been turned back to the authorities of the Mental Health Services Branch for their use. However, a very active tuberculosis-control programme has been carried out amongst

the staff and patients at Riverview Hospital. This programme includes periodic chest X-rays as well as tuberculin testing and B.C.G. vaccination. There is also a large group of previously treated and inactive cases, of approximately 350 patients, requiring continued follow-up. A tuberculosis physician and public health nurse from the Division of Tuberculosis Control have been assigned to Riverview Hospital to carry out this programme.

The Provincial responsibility for the treatment of tuberculosis patients extends to that point at which a patient might acquire residence in another Province. Quite often when British Columbia residents move elsewhere in Canada, they need treatment for tuberculosis before residence responsibility has been established in their new location. When it is not convenient for these persons to return to British Columbia, arrangements have been made for treatment in the Province where they are then residing. This is a reciprocal agreement, and the Province of British Columbia treats many patients who are the responsibility of other Provinces. During the past year 13 British Columbia cases were treated in other Provinces, while seven ex-Province cases were treated in British Columbia. Financial arrangements have been set up and a definite daily rate of payment has been established for the Provinces involved. During the past year the Province of British Columbia paid out \$14,290 to other Provinces and received approximately \$10,000 for cases treated here.

The great contribution of the British Columbia Tuberculosis Society to the programme in this Province both financially and in services is again recognized. One of the oldest voluntary health agencies in existence, it has been a major force in tuberculosis prevention for 60 years. While having entered into the broader field of respiratory diseases through its support of continuing medical education and research at the University of British Columbia, tuberculosis control still remains its primary purpose. The Society does the organization and promotion for the community surveys and, as it has over the years, conducts an educational programme in tuberculosis directed toward the public at large. Another major contribution is assistance toward the building of community health centres to provide facilities for tuberculosis clinics.

## REPORT OF THE DIVISION OF VENEREAL DISEASE CONTROL

Penicillin became available for widespread use soon after 1945, and this rapidly reduced the incidence of gonorrhœa and syphilis. The decline continued until about 1955, when a slow but progressive increase in both diseases recurred.

The increase in reported cases of venereal diseases in British Columbia was a reflection of the increasing incidence of these diseases throughout the world. It was shocking to discover that gonorrhœa and syphilis were far from being conquered, and were appearing again as a major health problem.

During 1965 it became necessary to take steps to strengthen the venereal-disease control programme. A full-time Medical Director of the Division was appointed, and a public health nurse was added to the staff.

### *Reported Venereal Disease, British Columbia, 1946, 1951, 1956, 1961-65*

Year	Infectious Syphilis (Primary and Secondary)		All Other		Gonorrhœa	
	Number	Rate <sup>1</sup>	Number	Rate <sup>1</sup>	Number	Rate <sup>1</sup>
1946.....	834	83.0	1,292	128.8	4,618	460.4
1951.....	36	3.1	445	38.2	3,336	286.4
1956.....	11	0.4	180	12.9	3,425	244.9
1961.....	64	3.9	148	9.1	3,670	225.3
1962.....	183	11.0	138	8.3	3,962	238.8
1963.....	280	16.6	196	11.6	5,012	295.7
1964.....	304	17.5	253	14.5	5,816	334.6
1965.....	178	10.0	228	12.7	6,146	343.5

<sup>1</sup> Rate per 100,000 population.

### INFECTIOUS SYPHILIS

The 178 cases of infectious syphilis in the primary and secondary stages of this disease reported in 1965 were a marked reduction of 41 per cent, as compared with the 304 cases reported in 1964. This reduction has been brought about primarily by the intensification of epidemiological treatment; that is, treatment of contacts and sexual associates of contacts as quickly as possible. These persons who have been in contact with syphilis are treated as though they had syphilis, but this is done long before any clinical or laboratory evidence of the disease has occurred. This early and rapid treatment of persons who may potentially become infected with syphilis prevents them from developing or spreading this disease.

This epidemiological treatment programme has been intensified by the practice of telephoning contact information between health units throughout the Province. Once a person has been diagnosed as having syphilis, contact information can be secured from that person, the information telephoned to appropriate health units throughout the Province, the contacts brought to treatment, sometimes within a matter of hours, and each individual epidemic brought to rapid extinction. To further this programme, the medical consultant of the Division is now employed exclusively for the diagnosis of syphilis, and the most-experienced epidemiologist has been placed full time on syphilis epidemiology in the Greater Vancouver area. Work is progressing with the Division of Laboratories toward the introduction of more rapid diagnostic tests for syphilis. Close co-operation is being maintained with

Washington State authorities in the "cluster testing" of groups in which one expects to find syphilis, since many individuals in this group move freely between Vancouver and Seattle. The Sick Mariners' Service of the Department of National Health and Welfare is most co-operative in this Division's attempts to prevent syphilis from being introduced by merchant seamen.

#### LATENT AND LATE SYPHILIS

When syphilis has passed the early stage in which there are skin or mucous lesions teeming with spirochetes that can spread to others, it becomes less of a threat to the community, and a problem of individual health. In order to prevent the late complications of this disease, it is essential to have blood tests at convenient and appropriate times to uncover previously infected persons. A blood test for syphilis is taken routinely by

- (1) the Red Cross Society when blood is donated;
- (2) the family physician during early pregnancy;
- (3) physicians during pre-employment examinations;
- (4) physicians for purposes of diagnosis.

In addition, it is desirable to have a blood test taken by

- (5) the hospital on cord blood at the time of delivery;
- (6) the hospital on new patients;
- (7) the family physician on patients new to his office, and annually in the sexually active groups;
- (8) the physician for premarital examinations.

The number of latent and late cases of syphilis discovered in individuals in 1965 was 228, a decrease from the 253 cases discovered during the previous year.

#### HIGH-INCIDENCE GROUPS

A survey is being conducted of all males admitted to Oakalla Prison Farm. On the assumption that it is possible that some of the persons who receive gaol sentences may stray from the accepted pattern of society in other fields, this programme of blood testing was instituted. Preliminary results indicate 1 in 500 prisoners was infected with syphilis. Unfortunately, as many of the prisoners are repeaters, it must be expected that this source of case-finding will rapidly become less productive.

The homosexual males continue to have a disproportionate share of syphilitic infections. In an attempt to reduce sexual practices in steam baths, the City of Vancouver passed a by-law outlawing closed booths and requiring a light level of 10 foot-candles. The effect of this action cannot be determined as yet.

#### GONORRHOEA

The number of reported cases of gonorrhoea continues to increase. The number reported in 1965 is 6,146, an increase of 6 per cent over last year. The essential control measure in force is referred to as "speed zone epidemiology." This is the concept that many females do not know they are infected and spread the disease to men. If a man with a gonorrhoeal infection names a woman, she is brought to treatment as quickly as possible to prevent further spread of the disease. This is the best way to find infected females, as laboratory procedures would not be expected to discover half of them. The number of females and homosexuals recurrently infected with gonorrhoea is relatively small. Procedures are being evolved to

identify these individuals, so that they can be readily identified when named by an infected male and brought to treatment.

Various attempts are being made to examine those women who are at risk of having this infection. Examinations are conducted at local penal institutions, including vagrants at the Vancouver City Gaol, admissions to Oakalla Prison Farm, and the Willingdon School for Girls. Preparations are presently under way to establish a surveillance clinic on the so-called "skid road" section of Vancouver.

If it were possible to remove gonorrhœa from the promiscuous female, it would be theoretically possible to control this disease, and every effort has been expanded in this direction. Gonorrhœa is still being spread by the male, who may infect one or more women. A study is under way to determine the men who are being named by two or more women, so that they can be sought out and brought to early treatment.

#### EDUCATION

The report of the Division of Public Health Education gives the details of the activities in school health education, posters, and exhibits.

In 1964 the Vancouver Sun assigned Mr. Arnie Myers, its medical reporter, to write a series of articles on venereal disease for publication in the newspaper. This was an outstanding success, and it was followed in 1965 by reproduction of the articles in booklet form; 50,000 copies were supplied to the Health Branch for distribution. This public service by the Vancouver Sun was much appreciated.

## REPORT OF THE DIVISION OF LABORATORIES

In its 35th year, the Division of Laboratories collaborated in two major studies—a survey of the waters of the Okanagan Valley and an air-pollution study in two separate communities. The Virology Service extended its programme for the isolation and identification of enteroviruses and prepared to undertake similar work on respiratory viruses. During 1965 a small new laboratory section was established to undertake in-service training, to develop new bacteriological and serological procedures, and to introduce a quality-control programme for public health and clinical bacteriology throughout the Province.

In Table I the number of tests and the work load in units performed at the main laboratory are compared with the 1964 figures. There was an increase in routine work load of approximately 8 per cent, from 958,210 units in 1964 to 1,034,400 units in 1965. These figures exclude the work load associated with virology, the shellfish and air-pollution programmes, and the Salmonella project. The major increases in work load were in public health chemistry, anonymous mycobacteria and anti-microbial sensitivity tests, examinations of nose and throat swabs, serology, enteric bacteriology, and mycology; decreases occurred in dark-field examinations, food poisoning investigations, and animal inoculations. In Table II the work loads in tests and units performed in 1965 at the Nelson and at the Victoria branch laboratories are recorded. Each Dominion Bureau of Statistics (D.B.S.) unit is equivalent to 10 minutes of work. The routine work load of the Division of Laboratories in 1965 was as follows:—

	D.B.S. Units
Main laboratory .....	1,034,400
Nelson branch laboratory .....	39,417
Victoria branch laboratory .....	130,173
Total .....	1,203,990

### BACTERIOLOGY SERVICE

#### TESTS FOR THE DIAGNOSIS AND CONTROL OF VENEREAL DISEASES

In the past three years the demand for standard tests for syphilis (S.T.S.) increased each year, by 4 per cent in 1963, by 7 per cent in 1964, and by 10 per cent in 1965. The *Treponema pallidum* immobilization (T.P.I.) test was performed by the National Laboratory of Hygiene and the Ontario Public Health Laboratories on 230 sera; positive results were reported on 99 patients. During 1965, 414 exudates from 311 individuals were examined by the darkfield technique for the presence of *Treponema pallidum*. Sixty-one (20 per cent) of these patients yielded positive results.

The demand for tests for the diagnosis and control of gonorrhœa, which increased by 8 per cent in 1964, increased by a further 3 per cent in 1965. Of 45,900 smears examined, 7,600 (17 per cent) were positive; of 10,600 cultures investigated, 3,000 (28 per cent) were positive.

#### OTHER SEROLOGICAL PROCEDURES

The demand for serological tests used in the diagnosis of typhoid fever, glandular fever, and brucellosis increased in 1965. The number of specimens submitted for antistreptolysin O titre estimation increased 14 per cent, from 4,300 in 1964 to 4,900 in 1965.

Nearly 200 serum specimens were selected and shipped in connection with antibody surveys conducted in laboratories in Eastern Canada. One hundred and seventy-two serological tests were performed at reference laboratories on sera submitted from 104 patients. The following positive results were obtained on these patients: Toxoplasmosis (dye, 15; complement-fixation, 11), histoplasmosis (7), lymphogranuloma venereum (1), cat scratch fever (1), and toxocarasis (1).

#### TESTS RELATING TO THE DIAGNOSIS AND CONTROL OF TUBERCULOSIS

There was little change in the number of specimens submitted for examination for *Mycobacterium tuberculosis*. By careful screening, the number of specimens tested by animal inoculation was reduced by 18 per cent, from 465 in 1964 to 383 in 1965. There was a substantial increase of 15 per cent in the number of strains tested for anti-microbial sensitivity. The number of cultures requiring further investigation to differentiate *M. tuberculosis* from other mycobacteria increased 20 per cent.

#### ISOLATION AND IDENTIFICATION OF PATHOGENIC ENTERIC BACTERIA

The number of specimens submitted for culture increased by 13 per cent, from 15,200 in 1964 to 17,200 in 1965. The enteric pathogens, isolated from 734 individuals, comprised 358 *Salmonellæ*, 201 *Shigellæ*, and 175 enteropathogenic *Escherichia coli*. Twenty-seven different types of *Salmonellæ* were isolated in 1965. The most common types isolated from man were *Salmonella heidelberg* (98), *S. typhimurium* (80), *S. infantis* (44), and *S. newport* (34). Four outbreaks of salmonellosis were investigated. The *Shigella* strains isolated during 1965 included *Sh. flexneri* (143), *Sh. sonnei* (36), *Sh. boydii* (21), and *Sh. dysenteriae* (1). The strains of enteropathogenic *E. coli* isolated were of the following serotypes: E14 (75); 026:B6 (25), 0128:B12 (22); 055:B5 (14); 086:B7 (12); 0111:B4 (10); 0127:B5 (8); 0125:B15 (6); and 0126:B16 (3).

The *Salmonella* project supported by Provincial and National Health Grant funds continued to study the epidemiology of salmonellosis in man and animals; almost 2,900 specimens were examined for *Salmonellæ*. In October the project bacteriologist resigned to assume a more responsible appointment; it was planned to bring the project to a conclusion in 1966. The fourth annual progress report covering the period October, 1964, to September, 1965, was completed.

#### OTHER BACTERIOLOGICAL TESTS

##### *Diphtheria*

No cases of diphtheria were diagnosed in the laboratory during 1965. *Corynebacterium diphtheriae* was isolated in only three of the past seven years.

The demand for cultures of nose and throat swabs for the presence of *Streptococcus pyogenes* and *Staphylococcus aureus* increased 12 per cent, from 10,000 in 1964 to 11,200 in 1965.

These laboratories continued to participate in an international survey to determine the geographical distribution of types of *Streptococcus pyogenes* Group A. Fifty Group A strains were submitted for typing to the Laboratory of Hygiene, Ottawa.

##### *Blood Cultures*

Of the 155 blood cultures submitted for examination, 15 yielded organisms. The bacteria isolated were *Staphylococcus albus* (4), paracolon bacillus (3), *Staphylococcus aureus* (2), *Neisseria meningitidis* (2), *Pseudomonas aeruginosa* (2), *Aerobacter aerogenes* (1), and diphtheroid (1).

### Food Poisoning

A total of 77 foodstuffs suspected of transmitting food poisoning were examined bacteriologically. The following organisms were isolated from food in the investigation of food-poisoning incidents: *Streptococcus pyogenes* (2), *Streptococcus faecalis* (2), *Bacillus cereus* (2), *Staphylococcus aureus* (1), and *Salmonella typhimurium* (1).

### Fungal Infections

The demand for mycological investigations increased 9 per cent, from 4,300 in 1964 to 4,700 in 1965. Approximately 26 per cent of specimens yielded positive results. The following dermatophytes were identified: *Microsporum canis* (98), *M. gypseum* (1), *Epidermophyton floccosum* (23), *Trichophyton rubrum* (200), *T. mentagrophytes* (67), *T. verrucosum* (8), and *T. tonsurans* (4), in addition to *Candida albicans* (574) and *Candida* spp. (203). *Malassezia furfur* was identified microscopically on 24 occasions.

### Parasitic Infections

There was a 5-per-cent increase in the demand for examinations for intestinal parasites. The following protozoan parasites were identified in specimens of faeces: *Entamæba coli* (165), *Giardia lamblia* (145), *Endolimax nana* (88), *Entamæba histolytica* (36), *Iodamæba bütschlii* (9), and *Chilomastix mesnili* (9). The following helminth eggs were identified in faeces: *Trichuris trichiura* (82), *Clonorchis sinensis* (26), hookworm (21), *Ascaris lumbricoides* (13), *Enterobius vermicularis* (13), and *Hymenolepis nana* (1). Eggs of *Schistosoma hæmatobium* were identified in two specimens of urine. Eggs of *Enterobius vermicularis* were found in 339 (18 per cent) of 1,918 anal swabs.

## PUBLIC HEALTH CHEMISTRY SERVICE

The Public Health Chemistry Service conducted five projects during 1965—water bacteriology, shellfish bacteriology, chemistry of water and waste water, maintenance and distribution of field kits, and air pollution.

### WATER BACTERIOLOGY

The number of water samples submitted for the coliform test increased 3 per cent, from 14,900 in 1964 to 15,400 in 1965. The study, started on January 1, 1964, to determine the correlation of results of the confirmed and the completed tests on drinking-water samples was continued until December 31, 1964. A total of 815 drinking-water samples yielded positive results in both tests after incubation for 24 hours. Of these, 560 (69 per cent) samples yielded less than 5/5 positive confirmed results, while 255 (31 per cent) of these samples yielded 5/5 positive confirmed tests and completed tests varying from 5/5 to 0/5. As only 5 of these 255 samples yielded a negative completed test (0/5) after a positive confirmed test in 24 hours, the Health Branch decided to discontinue the requirement for the completed test on drinking-water samples yielding 5/5 positive results in the confirmed test after incubation for 24 hours. While this new policy relieved this Division of the necessity for performing 370 completed tests, 2,300 completed tests were performed during the year.

### SHELLFISH BACTERIOLOGY

Following a brief pilot study on bacterial contamination of shellfish, a full-scale programme for the surveillance of some 34 shellfish leases was introduced with the support of a National Health Grant in April, 1965. Contamination, low in the summer months, showed a significant increase in October. Tests were carried out on 694 samples—shellstock (207), shucked oysters (52), and water from oyster beds (435).

### CHEMISTRY OF WATER AND WASTE WATER

The work load for chemical analyses of water and waste water increased from 24,800 units in 1964 to 45,000 units in 1965. This 80-per-cent increase was due to introduction of a testing programme for municipal water supplies, to initiation of a water-pollution survey, to increased requests from the Pollution-control Board, and to introduction of a monthly programme for testing composite samples of fluoridated water. In October, 1965, the chemistry service participated in the water-pollution survey of the Okanagan Valley, referred to in the Bureau of Local Health Services report; water collected from 14 selected points was examined physically, chemically, and bacteriologically in local laboratories and at the main laboratories in Vancouver.

### MAINTENANCE AND DISTRIBUTION OF FIELD KITS

Twenty different types of field kits were maintained and distributed for use by public health inspectors in preliminary chemical screening. Nearly 40 kits were issued during the year. Maintenance of kits held by field staff required the preparation and shipping of 160 different reagents or items of laboratory supply.

### AIR POLLUTION

In the long-term study of air pollution in the Albernis (mentioned in the Division of Occupational Health Report), samples collected from nine stations were analysed for dust-fall, suspended particulate matter, smoke, sulphur dioxide, and hydrogen sulphide.

### VIROLOGY SERVICE

Specimens from 252 patients were examined for enteroviruses, using tissue culture techniques or animal or serum neutralization tests. The following viral agents were isolated: Poliovirus Types 1, 2, and 3 (from one patient who had received Sabin vaccine); Coxsackie virus Type E4 (2); Coxsackie Type B5 (5); Echovirus Type 6 (9); Echovirus Type 14 (3); Adenovirus (1); and 7 not yet identified. The diverse clinical patterns associated with these viral infections included aseptic meningitis, encephalitis, pericarditis, myocarditis, gastroenteritis, and malaise with fever and rash. Echovirus Type 6 was responsible for most of the cases with neurological symptomatology.

Much of the work load in the virology laboratory results from the complexity and diversity of virological techniques. During 1965, 12,000 tubes of tissue culture were prepared, 65 litres of media were used, 10 enterovirus cultures were standardized, and 90 families of suckling mice were inoculated. It was not found possible to record work load in terms of Dominion Bureau of Statistics units.

With a view to extending the facilities of the virology laboratory, reagents were obtained and techniques established for the isolation and identification of respiratory viruses. By the end of 1965 the test systems available included two tissue culture

lines, developing chick embryos, experimental animals, and a variety of serological techniques.

In addition to in-service training, the virology staff participated in teaching laboratory technologists, medical students, and physicians, including health officers and interns in pathology. The virologist took an active part in ward rounds, seminars, and refresher courses. Dr. D. M. McLean, of the Hospital for Sick Children, Toronto, and Dr. F. P. Nagler, of the Laboratory of Hygiene, Ottawa, continued to provide virological reagents and advice on the development of virology service.

#### BRANCH LABORATORIES

The Kootenay Lake General Hospital continued to provide part-time technical and cleaning assistance to the Nelson branch laboratory. During the vacation of the technician-in-charge, specimens were shipped by air daily for examination at the main laboratories. The work load increased by 20 per cent, from 32,941 units in 1964 to 39,417 units in 1965.

The Royal Jubilee Hospital laboratory continued to provide public health laboratory services for the Greater Victoria Metropolitan Board of Health. The work load of 130,173 units was 25 per cent greater than in 1964.

#### GENERAL COMMENTS

The Director, appointed consultant to the Communicable Disease Center, United States Public Health Service, Atlanta, Georgia, participated in seminars on salmonellosis held by the States of Montana, Oregon, and Washington; he was guest lecturer at the ninth annual refresher course of the School of Hygiene, University of Toronto.

The senior analyst attended meetings and visited laboratories in connection with the water- and air-pollution programmes of this Division. The medical virologist visited virology laboratories in Ottawa, Toronto, and Winnipeg. His assistant attended a workshop on the laboratory diagnosis of respiratory viruses conducted in Seattle.

As in previous years, the senior staff participated in public health laboratory training of students of medical laboratory technology, bacteriology, sanitation, nursing, and medicine at the undergraduate and postgraduate level. Two laboratory technologists completed training at the British Columbia Institute of Technology and the Department of Pathology at St. Paul's Hospital and came on staff. This Division provided one week of training for laboratory trainees from the Royal Inland Hospital, a refresher course on serological techniques for trainees, and one month of training for one resident in pathology. To assist in the new programmes of the Training and Development Section and to permit the expansion of public health chemistry and virology services, three additional staff were authorized in 1965.

Table I.—Statistical Report of Examinations and Work Load in 1964 and 1965, Main Laboratory

	Unit <sup>1</sup> Value	1965		1964	
		Tests Performed	Work-load Units	Tests Performed	Work-load Units
<i>Bacteriology Section</i>					
Enteric Laboratory—					
Cultures—					
Salmonella-Shigella .....	7	14,275	99,925	12,560	87,920
Pathogenic <i>E. coli</i> .....	10	2,896	28,960	2,666	26,660
Food-poisoning examination .....	15	77	1,155	92	1,380
Miscellaneous Laboratory—					
Animal virulence (diphtheria) .....					
Cultures—	6	3	18	3	18
<i>C. diphtheriae</i> .....	5	11,488	57,440	10,079	50,395
Hæmolytic staph.-strep. ....	5	11,246	56,230	10,010	50,050
Miscellaneous .....	5	4,077	20,385	4,268	21,340
Fungi .....	5	4,657	23,285	4,278	21,390
<i>N. gonorrhæe</i> .....	5	10,580	52,900	10,970	54,850
Smears for—					
<i>N. gonorrhæe</i> .....	2	45,863	91,726	43,929	87,858
Vincent's .....	2	76	152	105	210
Miscellaneous .....	2	3,459	6,918	3,760	7,520
Serology Laboratory—					
Agglut.—Widal, Paul-Bunnell, Brucella .....	2	15,271	30,542	14,646	29,292
Anti-streptolysin test .....	5	4,872	24,360	4,311	21,555
Blood—					
V.D.R.L. (qual.) .....	1	152,072	152,072	138,489	138,489
V.D.R.L. (quant.) .....	2	2,721	5,442	2,853	5,706
Complement-fixation .....	2	7,863	15,726	9,423	18,846
C.S.F.—					
Complement-fixation .....	2	1,946	3,892	1,753	3,506
Complement-fixation (quant.) .....	2	12	24	20	40
Cell count .....	2	46	92	48	96
Protein .....	2	37	74	71	142
Darkfield— <i>T. pallidum</i> .....	3	414	1,242	617	1,851
Tuberculosis Laboratory—					
Animal inoculation .....	10	383	3,830	465	4,650
Anti-microbial sensitivity .....	25	1,551	38,775	1,347	33,675
Atypical mycobacteria .....	25	398	9,950	331	8,275
Cultures— <i>M. tuberculosis</i> .....	6	24,525	147,150	23,971	143,826
Smears for <i>M. tuberculosis</i> .....	2	9,997	19,994	9,930	19,860
Intestinal parasites .....	3	5,709	17,127	5,419	16,257
<i>Chemistry Section</i>					
Water bacteriology—					
Plate count .....	2	1,547	3,094	1,569	3,138
Coliform test .....	5	15,405	77,025	14,926	74,630
Water chemistry—					
Routine analysis .....	50	236	11,800	101	5,050
Partial analysis .....	—	2,432	20,055	1,867	12,135
B.O.D. ....	80	163	13,040	95	7,600
Totals .....	—	356,297	1,034,400	334,972	958,210

<sup>1</sup> One D.B.S. unit=10 minutes of work.

Table II.—Statistical Report of Examinations and Work Load during the Year 1965, Branch Laboratories

	Unit <sup>1</sup> Value	Nelson		Victoria	
		Tests Performed	Work-load Units	Tests Performed	Work-load Units
Enteric Laboratory—					
Cultures—					
Salmonella-Shigella .....	7	258	1,806	2,055	14,385
Pathogenic <i>E. coli</i> .....	10	.....	.....	812	8,120
Food-poisoning examination .....	15	.....	.....	5	75
Miscellaneous Laboratory—					
Animal virulence (diphtheria) .....	6	.....	.....	10	60
Cultures—					
<i>C. diphtheriae</i> .....	5	1,696	8,480	3,267	16,335
Hæmolytic staph.-strep. ....	5	1,696	8,480	3,267	16,335
Miscellaneous .....	5	905	4,525	33	165
Fungi .....	5	.....	.....	878	4,390
<i>N. gonorrhæe</i> .....	5	.....	.....	634	3,170
Smears for—					
<i>N. gonorrhæe</i> .....	2	531	1,062	883	1,766
Vincent's .....	2	6	12	6	12
Miscellaneous .....	2	30	60	294	588
Serology Laboratory—					
Agglut.—Widal, Paul-Bunnell, Brucella .....	2	564	1,128	1,032	2,064
Blood—					
V.D.R.L. (qual.) .....	1	4,368	4,368	11,366	11,366
V.D.R.L. (quant.) .....	2	24	48	123	246
Complement-fixation .....	2	.....	.....	499	998
C.S.F.—					
Complement-fixation .....	2	.....	.....	345	690
Cell count .....	2	.....	.....	412	824
Protein .....	2	.....	.....	396	792
Darkfield— <i>T. pallidum</i> .....	3	.....	.....	22	66
Tuberculosis Laboratory—					
Animal inoculation .....	10	.....	.....	.....	.....
Cultures— <i>M. tuberculosis</i> .....	6	.....	.....	2,093	12,558
Smears for <i>M. tuberculosis</i> .....	2	51	102	1,570	3,140
Intestinal parasites .....	3	41	123	1,048	3,144
Water Laboratory—					
Plate count .....	2	4	8	1,417	2,834
Coliform test .....	5	1,843	9,215	5,210	26,050
Totals .....	.....	12,017	39,417	37,677	130,173

<sup>1</sup> One D.B.S. unit=10 minutes of work.

## REPORT OF THE DIVISION OF OCCUPATIONAL HEALTH

This Division has been extremely active in a variety of fields during the past year. These activities are discussed below.

### EMPLOYEES' OCCUPATIONAL HEALTH SERVICE

The Division supervises the operation of an occupational health service for Provincial Government employees in three areas—Victoria, Vancouver, and the Mental Health Services complex at Riverview Hospital. These occupational health units are staffed by public health nurses, and physicians' services are available on a call basis. These units provide

- on-the-job emergency treatment of occupational and non-occupational injuries and illnesses;
- physical examinations, if requested by an employee or by an employee's department;
- health counselling for employees;
- health education;
- immunizations against influenza, poliomyelitis, smallpox, typhoid, diphtheria, and tetanus on a voluntary basis;
- certain treatments if requested in writing by an employee's family physician; for example, desensitizing injections and simple physiotherapy;
- an industrial hygiene service which, with the help of specialists from other divisions, deals with environmental hazards;
- a consultative service to the personnel sections of various departments on medical matters pertaining to the departments' employees. Such consultations might concern prognoses and estimates of disability.

The table below indicates the number of services rendered and the number of immunizations given during the past year:—

Occupational Health Unit	Number of Services Rendered by Nurse or Physician	Number of Immunizations Included in Total
Vancouver .....	3,006	1,332
Victoria .....	4,492	1,709
Riverview Hospital .....	3,486	1,736

### RADIATION PROTECTION SERVICE

During the year an additional radiological technician, whose specialty is medical and industrial isotope inspection, was added to this service. This enabled the Division to increase the number of technical surveys conducted in connection with all forms of ionizing radiation. It is hoped that such surveys will now become available on a yearly basis to all areas of the Province.

On January 1, 1965, there were 267 licences authorizing the use of radio-isotopes in the Province. During the year an additional 118 licences were processed and approved. With the strict Atomic Energy Control Board licensing regulations and the inspection service provided by this Division, there have been very few reportable incidents.

From a public health point of view, the greatest concern with radiation is from the use of X-ray machines by the medical and para-medical groups, who collectively operate approximately 1,300 units throughout the Province. The maximum work load for one unit is estimated to be 20 cases per day. On the

assumption that a unit operates at one-quarter capacity, this would indicate that there are 6,500 examinations done each day. According to figures supplied by the Dominion Bureau of Statistics, the average X-ray examination uses 2.5 films or exposures. It is thus estimated that the population of this Province is receiving 16,250 X-ray exposures per day. This is the largest amount of radiation received by the population as a whole from any source. It is far in excess of that received by natural background and fallout radiation combined.

While a very large part of the population is being exposed during the year to this man-made radiation, the total accumulated dose per person is not considered dangerous when consideration is taken of the benefits derived from such diagnostic procedures.

The efforts of the Radiation Section of this Division are directed toward reducing individual exposure to the barest minimum. This is done by testing the units for proper filtration and collimation and recommending that gonadal protection be provided for all persons of child-bearing age or younger. Whenever safety procedures have been recommended, they have been willingly instituted by the X-ray unit operators.

During the last quarter of the year, a concentrated effort was made to complete the Provincial survey of dental X-ray units. Three hundred and twenty-five were completed, while 100 in the City of Vancouver remained to be surveyed.

A continuing interest was maintained in the various education programmes designed for professional, technical, and interested lay groups. Special emphasis was given this year to the two annual refresher courses held for medical X-ray technicians.

The use of the staff of this Section as consultants by professional groups and industries involved in the use of ionizing radiation continues to grow, with some 70 telephone requests alone being handled every month. In addition, the Committee on Equipment and Planning of the Radiological Advisory Council to the Department of Health Services and Hospital Insurance has met every three weeks to keep up with the increase in the number of requests for assistance and advice. At the request of the British Columbia Hospital Insurance Service, this Committee reviewed 63 applications for grants toward installation of X-ray equipment in hospitals, with a total value of \$460,600.

It is with a great deal of satisfaction that the Radiological Advisory Council can report that the training programme for X-ray technicians at the British Columbia Institute of Technology continues to prove very successful. The Council was instrumental in securing such training for the para-medical groups.

#### FACTORY INSPECTION SERVICE

Discussions have been going on with the Department of Labour, Factory Inspection Branch, during 1965. It has been decided that the function of factory inspection is one aspect of a comprehensive public health programme and should be carried out by local health departments. The Minister of Labour agreed to the appointment of medical health officers and public health inspectors as factory inspectors. This took effect in November of this year. In order to provide the training necessary for implementation of this service, seminars for public health inspectors and health officers were held in Prince George, Kamloops, Trail, Cloverdale, and Nanaimo, with the Chief Factory Inspector, Consultant Public Health Inspector, and Director of Occupational Health in attendance. Further training sessions are being planned for the coming year.

## AIR-POLLUTION SURVEY

Reports received by the Director of the Central Vancouver Island Health Unit from physicians practising in the Alberni Valley indicated that these doctors were attending an excessive number of upper respiratory infections when compared with their experience in practice in other areas. The physicians, however, were not able to relate episodes of illness to definite occurrences of excessive air pollution. Statistics obtained from the British Columbia Hospital Insurance Service demonstrated an excess hospitalization rate for diseases of the respiratory system for residents of this area. These observations suggested that further epidemiological investigation of the valley area was likely to be fruitful, and a series of studies was planned to compare various measures of health in Port Alberni-Alberni with a control community located elsewhere in British Columbia. These studies will continue for the next four years. They are being carried out co-operatively by this Division, the Division of Laboratories, the Division of Epidemiology, and the Department of Preventive Medicine of the Faculty of Medicine, University of British Columbia. The Division of Occupational Health has been concerned with the phase of the study involving the air quality and the meteorology of the two communities. In the meteorological aspect of the study, the Division has been assisted by the Division of Meteorology of the Federal Department of Transport.

## PESTICIDES

The Director is a member of the Advisory Committee to the Minister of Agriculture on the Sale and Distribution of Poisons, Drugs, and Medicines in Agriculture. This Committee has met once each month during the past year. The amendment to the *Pharmacy Act* which was passed at the 1965 Session of the Legislature gave power to establish regulations to control the sale of pesticides. At the present time the Advisory Committee is working on such regulations and is also studying, specifically, the use of drugs and medicines in agriculture.

## MISCELLANEOUS ACTIVITIES

During 1965 the Director of the Occupational Health Division participated in the Medical Health Officers' Refresher Course and at Health Officers' Council, presenting papers on various aspects of the programmes outlined above. Several lectures on occupational health were given to nurses at the University of British Columbia School of Nursing. The Director was also guest speaker at meetings of a variety of outside organizations, for example, the Dental Technicians' Association, the First Aid Attendants' Association, the Air Pollution Society, and the Canadian Transit Association.

## REPORT OF THE DIVISION OF REHABILITATION SERVICES

The Division of Rehabilitation Services has continued to develop its programme of utilizing local community resources as a means of providing rehabilitation to outlying areas of the Province.

There are now 14 centres in which local vocational rehabilitation committees are operating, with three more now in the planning stage, but these require considerable assistance and advice from the central office. Attempts were made for a member of the Divisional staff to visit each area at least once every two or three months to provide consultative assistance to the local committee. Great credit is due to the members operating these committees for their splendid enthusiasm and co-operation in the programme, and for the excellent service they have provided.

In order to meet this need to provide continuing consultation to the local committees, plans have been developed to employ a number of rehabilitation field consultants, whose duty will be to provide consultative advice and assistance as well as co-ordination of services, in a geographical area serving two or more local rehabilitation committees. It is hoped thereby to improve considerably the amount and standard of rehabilitation service offered to handicapped persons in their own areas, as well as curtailing the amount of travelling done by the staff of the central office.

One rehabilitation field consultant has assumed duties covering Vancouver Island, excluding Victoria and Saanich, and another has been recruited for the Okanagan region. Attempts are now being made to enlist other workers to cover two additional areas of the Province.

Most of the organizational activity of this Division has hitherto been channelled into the development of local community rehabilitation committees in non-metropolitan areas. It is doubtful if such an arrangement could function in the City of Vancouver, and efforts are being made to devise an alternative system for handling the large case load of this area.

Physical rehabilitation services have been developing in general hospitals, and where these have been put into operation, co-ordination between the hospital programme and the local vocational rehabilitation committee has been established. This provides a useful early case-finding service for the latter committee.

Community agencies continued to play an active part in the general rehabilitation programme. In this respect the Rehabilitation Foundation of British Columbia has provided signal service in vocational assessment and to some extent in the vocational training of those who are more severely handicapped. Attempts are being made to interest other community organizations in the development of training workshops for the severely handicapped.

For those with a high educational standing and with less severe handicaps, the vocational schools operated by the Department of Education are providing an ever-increasing service in vocational training. New vocational schools have been opened in several centres throughout the Province, thus enabling persons to receive their training in or relatively near their own environment.

The close liaison developed among the various departments concerned in the rehabilitation process—the Departments of Health, Social Welfare, and Education, and the National Employment Service in particular—has been most gratifying, and has formed a solid foundation on which the rehabilitation edifice of this Province is being built.

### PERITONEAL DIALYSIS

A number of patients are being maintained on a programme of peritoneal dialysis within their own homes. In view of the costs involved, the inability of the patients to meet these costs, and the lack of any alternative resources, the Division of Rehabilitation Services has assumed the administrative responsibility for arranging financial assistance from Provincial Government funds.

Dialysis is a necessary procedure to maintain life in these patients, and will continue until such time as renal transplantation becomes a practical possibility.

### THALIDOMIDE DEFORMITIES

Of the 10 children born in this Province with known thalidomide deformities, six still remain alive. Three of these, who have major deformities, are being supported regularly by Government funds for their rehabilitation.

### CO-ORDINATION WITH OTHER AGENCIES

Members of this Division continued to serve on boards and advisory committees of many of the community agencies. They thus are able to remain aware of existing policies of those agencies, as well as taking some part in shaping their future interest for the benefit of the general rehabilitation programme.

Interdepartmental meetings have also assisted considerably in clarifying many problems of rehabilitation as they relate to other Provincial departments, as well as to the Federal-Provincial Agreement on Rehabilitation.

### CASE LOAD OF THE DIVISION OF REHABILITATION

Case load at January 1, 1965 .....	230
Cases considered for rehabilitation, January 1 to December 31, 1965 .....	565
	<hr/>
Total .....	795

### DISPOSAL

Cases closed, January 1 to December 31, 1965 .....	151
Cases rejected as not capable of vocational rehabilitation, January 1 to December 31, 1965 .....	46
Cases currently under assessment .....	294
Cases currently under training or awaiting placement .....	304
	<hr/>
Total .....	795