PROVINCE OF BRITISH COLUMBIA

Sixty-fourth Annual Report of the

Public Health Services of British Columbia

HEALTH BRANCH

DEPARTMENT OF HEALTH SERVICES AND HOSPITAL INSURANCE

YEAR ENDED DECEMBER 31ST

1960

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1961

The Honourable Eric Martin, Minister of Health Services and Hospital Insurance.

OFFICE OF THE MINISTER OF HEALTH SERVICES
AND HOSPITAL INSURANCE,
VICTORIA, B.C., February 21st, 1961.

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-fourth Annual Report of the Public Health Services of British Columbia for the year ended December 31st, 1960.

ERIC MARTIN,
Minister of Health Services and Hospital Insurance.

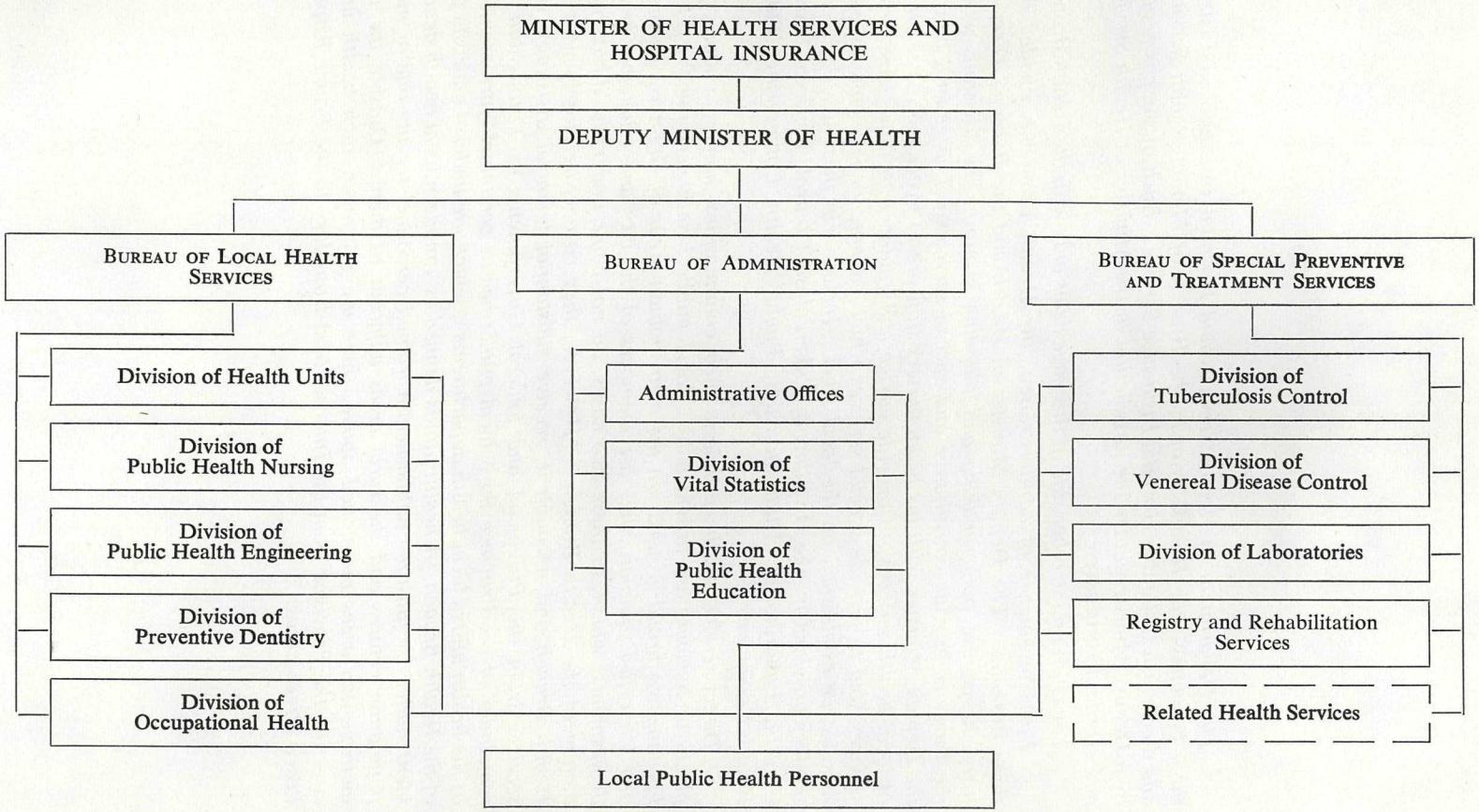
DEPARTMENT OF HEALTH SERVICES AND HOSPITAL INSURANCE
(HEALTH BRANCH),
VICTORIA, B.C., February 21st, 1961.

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

SIR,—I have the honour to submit the Sixty-fourth Annual Report of the Public Health Services of British Columbia for the year ended December 31st, 1960.

G. F. AMYOT, 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 the development of 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, etc.

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 Victoria-Esquimalt, 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 with 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 seventeen such health units covering the Province from the International Boundary to the Prince Rupert-Peace River areas.

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Sixty-fourth Annual Report of the Public Health Services of British Columbia

HEALTH BRANCH

Department of Health Services and Hospital Insurance

YEAR ENDED DECEMBER 31st, 1960

G. F. Amyot, Deputy Minister of Health and Provincial Health Officer

The Department of Health Services and Hospital Insurance consists of three branches—the Health Branch, the Mental Health Services, and the Hospital Insurance Service. This Report deals with the Health Branch and, in the sections beginning on page 14, sets forth the year's events and trends as described by the heads of the various bureaux and divisions. Some general observations are as follows:—

AREA AND POPULATION OF THE PROVINCE

The population in 1960 was estimated as 1,606,000. This was 36,000 above the figure for 1959. Preliminary figures indicate that for the third successive year the birth rate was slightly below that for the previous year, the death rate being substantially the same as in 1959. The infant death rate declined to a new record low.

The total area of the Province is about 366,000 square miles, but by far the greatest concentration of population is in the Lower Mainland area and the southern tip of Vancouver Island. The population density in Census Division 4, which includes Greater Vancouver, is close to ninety per square mile, while that for Census Division 5, Vancouver Island, is slightly over twenty-two per square mile. Nowhere else in the Province does the population density exceed ten per square mile, and in the northern areas it is less than one. Despite the travel distances necessary to render public health service in these areas of low population density, virtually everyone in the Province is served either by the public health facilities of the Province or by one of the two metropolitan health departments of Greater Vancouver or Victoria-Esquimalt. For the non-Indian population of the Province, about 45 per cent is served by the metropolitan health departments and 55 per cent by the Provincial health service. All Indians, except those who have been enfranchised, are provided service by the Federal Government.

THE HEALTH OF THE PEOPLE

There were only minor changes in the mortality rates for the principal causes of death in 1960 compared with 1959. The 1960 rates per 100,000 population were 350.0 for heart disease, 148.6 for malignancies, 103.5 for intracranial lesions of vascular origin, and 65.2 for accidents.

Of the accidental deaths during 1960, 29 per cent were caused by motor-vehicle accidents, 19 per cent by falls, 10 per cent by drownings, and 8 per cent by poisonings. Over one-third of the non-transport accidents leading to death occurred in the home.

For the third year the infant mortality rate was down from the figure for the previous year, the 1960 rate being 24.6 per 1,000 live births compared with 24.9 in 1959.

The maternal mortality rate in 1960 was 0.5 per 1,000 live births, slightly above last year's rate of 0.4.

The mortality rate for tuberculosis was 3.7 per 100,000, compared with the 1959 rate of 3.4. This minor interruption is the first in the steady downward trend of tuberculosis mortality since 1955.

There were twelve deaths from poliomyelitis this year, one less than in 1959.

No major outbreaks of communicable disease occurred. Several of the more important diseases continued to be reported with increasing frequency, however.

There were 165 cases of paralytic poliomyelitis, an increase of thirty-three cases over the number for 1959. Bacillary dysentery was responsible for the greatest increase in morbidity with 1,192 cases, including one death. Salmonella infection, principally from the eating of contaminated food, occurred with increasing frequency, with 434 cases being reported. For the third year in succession there were no confirmed cases of diphtheria. A total of twenty-five persons developed typhoid or paratyphoid fever.

OTHER IMPORTANT EVENTS AND TRENDS

During the year it was possible to meet the requests of a further fifteen communities for the inclusion of home nursing-care programmes in their regular generalized public health nursing service. This brought to twenty-six the number of centres receiving the additional service, which emphasizes rehabilitation in the community rather than in hospitals or institutions.

The home nursing-care programme was co-ordinated with the service provided by the Victorian Order of Nurses in certain areas, and financial assistance was given to the Order for this purpose.

National Health Grants, matching Provincial Government funds, and contributions from municipal governments, service clubs, and voluntary agencies were again used in the construction of community health centres. Seven such centres were completed in 1960, bringing to fifty the number built under this plan since it was brought into effect in 1951. In addition, five other communities started construction of health centres during the year.

For a number of years the Employees' Health Service has been available to Provincial Government employees in Victoria. The service is designed to assist employees to attain and maintain good health in order to promote job efficiency. It includes advice and consultation on all health matters of employees and their families. Toward the end of the year, National Health Grants were used to employ another public health nurse and purchase the equipment necessary for conducting the programme in Vancouver, where there is also a relatively large concentration of Provincial Civil Servants. As soon as adequate accommodation is made available, the service should develop quickly in meeting the needs of employees and their supervisors.

Over nine years ago the Registry for Handicapped Children was established as part of the Provincial health services. In addition to providing a valuable measure of the nature and extent of the problems and pointing up the facilities required for dealing with them, it has stimulated appropriate action in the care and management of cases which might otherwise have gone unattended. During 1960 two changes were effected. First, the age limit of 21 years was eliminated and the title changed to the Registry for Handicapped Children and Adults. Second, the Registry was integrated with the rehabilitation programme and a Director of Registry and Rehabilitation Services was appointed.

The public health nurse and a typical British Columbia community.

In the field of rehabilitation itself, vigorous study and planning were continued during the year. In preparation for developments in this important work, the Director of Registry and Rehabilitation Services visited the United Kingdom and other European countries, with the aid of National Health Grants, to confer with world leaders in rehabilitation and to observe their programmes in operation.

The end of 1960 saw the completion of one full year's experience with the programme of minimal patient-care in the Division of Tuberculosis Control. Under this plan the patients take as much responsibility as possible for their own care. The results have been beneficial. The rehabilitation process and preparation for discharge have been speeded up, to the advantage of the patient. The cost of patient-care has been reduced without lowering the standard of service.

Again the voluntary agencies, the professional groups, local authorities, and the other departments of Government provided great help and co-operation in their relations with the Health Branch. To these and to his fellow-workers of all categories in the Health Branch, the Deputy Minister of Health expresses his sincere appreciation.

The sudden death of Dr. Stewart Murray, Senior Medical Health Officer of the Greater Vancouver Metropolitan Health Committee, occurred on September 23rd, 1960. For many years he was one of Canada's best-known public health leaders, and his relationships with the British Columbia Provincial Government health services were particularly close. His great ability and experience in public health, together with his unfailing kindness and good humour, make his loss a serious blow.

REPORT OF THE BUREAU OF ADMINISTRATION

A. H. CAMERON, DIRECTOR

As the chart on page 7 shows, the Bureau of Administration includes the central administrative offices, the Division of Vital Statistics, and the Division of Public Health Education. These are grouped together because they serve all other parts of the Health Branch. Separate reports concerning the Divisions of Vital Statistics and Public Health Education appear elsewhere in this volume, however.

The Bureau Director, who is a member of the Health Branch's central policy-making, planning, and administrative group (the Deputy Minister and the three Bureau Directors), is concerned particularly with non-medical administration.

During the year the Department of Public Works did much to improve the physical accommodations in certain Health Branch buildings. As anticipated in last year's report, the seventh (top) floor of the Health Branch's Provincial Health Building in Vancouver was completed, and some of the offices have been occupied by the Deputy Minister of Mental Health and his headquarters staff. From the Health Branch point of view, one great advantage has been the even closer working relations with the Mental Health Services.

Another welcome improvement took place at Pearson Hospital in Vancouver in the fall, when landscaping was undertaken. This has undoubtedly improved the morale of the patients of the Tuberculosis Hospital and the adjacent Poliomyelitis Pavilion. Other developments included alterations to the ambulance entrance and the apparent solution of a problem of leaking roofs.

At the Poliomyelitis Pavilion, a temporary storage building was constructed. This has done much to alleviate the problem stemming from the fact that some patients in the Pavilion require three types of bulky equipment—ordinary hospital bed, rocking bed, and respirator—which must be readily available.

Also at the Poliomyelitis Pavilion, improvements were effected in the system of electrical supply, a most important feature in any hospital and a particularly important feature in this hospital, in which the operation of the respirators depends upon the electrical system.

In the Victoria offices, the main problem continued to be a shortage of space. Some relief from this was brought about near the end of the year when alterations at the Topaz Avenue vault made it possible for the Division of Vital Statistics to store more of its records there.

The growing population and the extension of the home care programme required increases in the staff of local health services. The additional appointments were casual in nature, the salaries being derived from National Health Grants or the special Provincial budget item for home care.

The efficiency of the professional, technical, and administrative services in any organization is improved by training. Since the inception of the National Health Grants programme in 1948, the Health Branch has been fortunate in having funds available for this purpose.

In 1960 fourteen Health Branch employees completed postgraduate training at university and sixteen employees commenced such training. (These figures do not include training provided to personnel of hospitals, the Mental Health Services, and other agencies.)

As in previous years, in-service training in the form of weekly or monthly staff meetings helped to raise the level of staff knowledge. The Annual Public Health Institute, held in Victoria in April, was a more formal means of achieving this aim.

The principal speaker was Dr. H. L. Dunn, Chief, National Office of Vital Statistics, U.S. Public Health Service.

The Federal Government effected some reorganization of the National Health Grants structure in 1960. Two grants, the Venereal Disease Control Grant and the Laboratory and Radiological Services Grant, were, in effect, absorbed into the General Public Health Grant. The Medical Rehabilitation Grant and the Crippled Children Grant were combined.

The Assistant Provincial Health Officer, who is stationed in Vancouver, has the prime responsibility for the administration, in British Columbia, of the National Health Grants programme under the direction of the Deputy Minister of Health. Details of the 1960 experience are presented in the Assistant Provincial Health Officer's report, which appears later in this volume. However, it is interesting to note here that approximately 25 per cent of the gross expenditures of the Health Branch for the fiscal year ended March 31st, 1960, were made using National Health Grants.

During 1960 reciprocal agreements for the care of tuberculosis patients were continued with Alberta, Saskatchewan, Manitoba, Ontario, and Quebec. The *per diem* rate in each case remained unchanged at $8.

For varying lengths of time during the year seventeen British Columbia cases were hospitalized in other Provinces (Alberta, ten; Saskatchewan, one; Manitoba, one; and Ontario, five). At the end of the year, only three of these were still in hospital. The number of cases from other Provinces who received care in British Columbia tuberculosis institutions was eight (Alberta, three; Ontario, two; Manitoba, three). At the end of the year, none of these was in hospital.

REPORT OF THE BUREAU OF LOCAL HEALTH SERVICES

J. A. TAYLOR, DIRECTOR

ORGANIZATION AND DEVELOPMENT

The objective of a uniform standard of public health service for the Province as a whole has continued to be the goal of the Bureau of Local Health Services. This administrative function requires that numerous contacts be established and maintained between the several areas of field service at the local level and the various specialized divisions within the Health Branch, with an over-all consultative, supervisory, and advisory role through this Bureau. In the performance of this service, consultants attached to the individual divisions throughout the Department make periodic visits to each health unit area to confer on specialized programmes while proffering advice and guidance on the many routine services.

Administration of local health services through an organized health unit was first introduced into this Province in 1921 and has since spread to all areas of the Province containing centres of population. The seventeen Provincial health units plus the autonomous city health departments in Vancouver and Victoria and the public health nursing districts serving Kitimat and Ocean Falls constitute the public health services for British Columbia. The concept of a union of municipal and school health services to serve several municipal areas and several school districts was designed primarily to provide full-time health services to towns and school districts that, because of size, could not of themselves provide a basically recognized standard of public health services and preventive medical programmes to their people. Adaptation of this same concept to a city health department was early contemplated and applied to a metropolitan health department in the development of the Greater Vancouver Metropolitan Health Service, which became organized in 1936. This organization provided for the City of Vancouver, the City and District Municipality of North Vancouver, the Municipality of West Vancouver, the Municipality of Burnaby, the Township of Richmond, and the school districts in those areas the unification of their health services under a Metropolitan Health Committee and the administration of these services through six health units. This innovation in metropolitan health service administration, loosely conceived through a metropolitan health agreement and viewed with some skepticism by health administrators, has developed an enviable record in service to the Greater Vancouver residents, keeping pace with the population growth and the changing trends in preventive medical practices. In large part, success in this was due to the splendid leadership and administrative guidance of the late Dr. Stewart Murray, whose ability to weld divergent groups in a concerted coalition did so much to promote the project and demonstrate its effectiveness. His sudden death was a sad loss to public health as he was recognized as being one of the noted public health leaders, not only in his own city, but also throughout Canada and in the United States. The Greater Vancouver Metropolitan Health Service remains as a monument to his memory.

A demonstration of the effectiveness of a metropolitan health administration shown by the Greater Vancouver Metropolitan Health Service led to consideration of a similar type of administration for the Greater Victoria area. Several previous proposals could not gain sufficient support to permit serious negotiations; however, the latest move, commencing over a year ago as a result of the avowed desire of the Greater Victoria School Board (School District No. 61) for some uniform administration of school health services, led to prolonged negotiations, which were

continued throughout the year at meetings chaired jointly by the Deputy Minister of Education and the Deputy Minister of Health. While organized public health services are available to the communities and school districts throughout the Greater Victoria area, it is felt co-ordination of these services is desirable in the interests of uniformity in administration, and it is proposed that a metropolitan health service be developed to provide co-ordinated health services to the 162,000 residents in the Lower Vancouver Island area, which would include:—

Location	Population	Present Service
City of Victoria	64,000	Victoria-Esquimalt Health Department.
Municipality of Esquimalt	11,500	
Municipality of Oak Bay	15,700	Oak Bay Health Department.
Municipality of Saanich	46,000	Saanich and South Vancouver Island Health Unit.
Municipality of Central Saanich	2,700	
Village of Sidney	1,600	
Unorganized area	20,800	

In the interests of a co-ordinated administration, the municipalities and School Boards would execute an arrangement for a metropolitan board of health, composed of representatives from the already existing Union Boards of Health (Victoria-Esquimalt, Saanich and South Vancouver Island) in association with representatives from the Municipality of Oak Bay and the School Board for School District No. 61. Following the organization of a metropolitan health department, personnel employed within the existing services would be absorbed into the department as far as possible, with the addition of some senior administrative personnel. Actually, it is proposed the staff would consist of a Senior Medical Health Officer, two Assistant Medical Health Officers, a Medical Examiner, a Director of Public Health Nursing, a Supervisor of Public Health Nursing, two Senior Public Health Nurses, thirty Staff Public Health Nurses, a Chief Sanitary Inspector, seven Staff Sanitary Inspectors, and fourteen Clerical Assistants. It is estimated that this type of administration would cost $355,000 annually, but as present costs amount to approximately $313,000 annually, there would be about $42,000 additional funds necessary to finance the proposal, which, it is proposed, would be raised from National Health Grants in the interests of the expanded health services. The negotiation in respect to these proposals became completed toward the close of the year and were ratified by the Councils and School Boards concerned in the premise that the new administration could become organized early in the new year.

The health units administered through the Health Branch displayed the usual turnover in staff as resignations and transfers occurred in the usual number, particularly among the ranks of the public health nurses, as shown in the report of that Division. However, some changes occurred in the ranks of public health physicians, posing problems in negotiating administrative adjustments within those health units.

Affected were the Upper Island, East Kootenay, North Fraser, Selkirk, Peace River, and South Okanagan Health Units, whose Directors changed positions, and the Central Vancouver Island, Boundary, and Cariboo Health Units, in which the positions of Assistant Director were vacant for at least part of the year.

RESIDENT PHYSICIANS GRANTS

The Health Branch maintained supervision of a programme of grants-in-aid to resident physicians, designed to encourage physicians to take up residence in remote communities and to provide service on a periodic schedule of visits to neighbouring communities not sufficiently large enough in themselves to support a physician.

This has been in operation for a number of years, based upon a definite formula inversely proportionate to the population and directly proportionate to the distances of travel. At present, grants are being paid in thirty-one locations within the Province to thirty-one physicians.

The one area that has had a major problem in provision of medical care is Stewart, where, since the closure of industrial operations, it has been found difficult to attract a full-time resident physician for any lengthy period. As a result, there have been two or three changes in physicians during the year, as the volume of medical practice was hardly sufficient to maintain professional interest. As the year ended, the community was again in the throes of disorganized medical care, endeavouring tc attract a semi-retired physician who might be expected to remain longer in the community. Their situation is particularly grave as the problem of medical care is linked to that of hospital care to the degree that without a resident physician it is doubtful that the hospital could maintain operations.

During the year no new areas were brought into the plan, which seemed to be providing adequate coverage to the existing remote areas of the Province where financial aid was deemed desirable.

SCHOOL HEALTH SERVICES

Over the past ten years concepts of school health services have shown a gradual material change. There was first the realization that the school-child could not be considered separately from the rest of the community, as he was actually a definite member of a family group within the community. Acceptance of this fact led logically to the conclusion that the health of the school-child was dependent on the health services provided for the commmunity as a whole rather than on the provision of a separate school health service. It became increasingly apparent that the more effective and more extensive a general health service is, the fewer health problems there would be in the schools.

Concomitantly, evidence pointed to the need for concentrated services to selected individual children, and it became evident that the time spent on routine inspections and examinations, which supposedly gave the administrator a cross-section of the health status of the whole school population, really revealed little about the well-being or the progress of the individual child.

At this same time the efforts at quarantine were demonstrated as outmoded in the control of many of the communicable diseases, while problems related to the prevention of rheumatic fever, dental caries, and other fields posed challenges for the application of preventive measures.

The concentration on the physical status of the school pupil gave ground to the need of the school health programme to include something indicative of the emotional and mental status of the school pupil. As these concepts gained weight, demonstrative of the parallel between community health service and the health of the school-child, it was apparent that without the co-operative functioning of all of the services, the school pupil could hardly be expected to achieve well-being.

The school health programme, as it is developing, has several objectives:—

(1) It is designed to present an appraisal of the child—physical, mental, emotional, and social. What are his assets, his liabilities? What needs to be done to help this child achieve a level of health commensurate with his potentialities for health?

(2) How can each child in school be considered as an individual? Unless a way is found to accomplish this end, the knowledge of the principle of the individual differences is to no avail.

(3) How can the school environment be improved so that the growth and development of the child cannot be impeded? The concern here lies with both the physical and emotional environment; that is to say, the emotional environment of the classroom, including such factors as the effect of the teacher's personality, the routines and disciplines imposed on the children.

(4) How can an educational programme be developed in the school which enables a child to learn how to make judgments which affect health behaviour?

These, then, are the main considerations in a school health programme—health service, health guidance, health instruction, and school environment. In order to accomplish this, the education and the school health personnel are required to re-orient their efforts so that consideration is given to the needs of the children in developing a programme that meets the mental, emotional, social, and physical needs of this age-group.

The classroom teacher is the foundation stone in programme success. The good teacher's observations can be valuable to a school physician. The teacher should not be content with a cursory " morning " inspection for rashes or dirty finger-nails; she should be constantly alert for signs of deviation from normal. Such signs may be transient and dramatic—a flushed face in the afternoon that may indicate fever and an oncoming infection, or they may be gradual and obscure, such as the slowly growing inattentiveness in a child whose hearing or vision is failing, or whose home situation is becoming difficult. It is becoming increasingly clear that the teacher has much to offer to the physician, and that she should be encouraged to make more careful observations, not to make diagnoses such as enlarged tonsils, but to note these things that can be observed, such as the child commencing to squint when he looks at the blackboard, leave the room more frequently to urinate, or to change his normal patterns of behaviour.

These observations can be imparted to the public health nurse, who can correlate them with her knowledge of the case-history of the child and the home conditions. The teacher-nurse conference may provide sufficient information leading to satisfactory treatment, but in other instances the support of the parents, family physician, and others will be required. The public health nurse serves to link up the school with the health and welfare of the community.

Many services are designed in the interests of the school pupil in the fields of dentistry, nursing, nutrition, health education, sanitation, and so forth. Parts played by these services in their contribution to the school health programme are ably presented in the individual reports of the divisions of the Health Branch in other sections of this Report; they should be read and digested to understand fully the extent of the services being provided to the schools throughout this Province.

HEALTH OF THE SCHOOL-CHILD

The school health programme is planned to provide health services to the pupil for the academic year, and the analysis of the health status of the children in the various grades within the schools is collated on that basis from September, 1959, to June, 1960, during which school health services were provided in the 1,214 schools included in the eighty-two school districts and the sixteen small school areas. In these schools there were 11,700 classrooms.

Within the grades examined there was an 11.1-per-cent increase in pupils enrolled during 1959/60, there being 309,993 that year compared with 279,040 the previous year.

In those grades, 37,175 pupils were examined—only 12 per cent of the children in those grades. This is a further decrease in the number examined, approximating 1.7 per cent from the previous year, when 38,174 children were examined; it is indicative of the decline in the volume of routine physical examinations. However, there was an increase in the number of Grade I pupils examined, as shown in Table I. From it there is evidence that 25,658 pupils in that grade (73.4 per cent) were examined, as against 25,394 (79.5 per cent) for the previous year. Thus, while there was an increased number of pupils examined, the increased enrolment in the grade actually represented a percentage decrease in the number receiving physical examinations. This examination, occurring at a transitional period in the child's life as he leaves the home to become part of the community, is usually conducted with the parent present and is therefore productive of greater results, since the co-operation of the parent can be anticipated in preparing the child for school. In later grades, screening methods are adopted solely as a selection for medical attention. In the elementary grades the percentage receiving examination fluctuated between 3 and 7 per cent of the pupils, and in the high-school grades the volume of medical examinations continued to be based on selectivity and showed a consistent decrease with each higher grade.

There continued to be a great deal of medical attention devoted to children enrolled in special classes, which include classes for mentally retarded children. Of the enrolment in all special classes, 20.8 per cent received examination. In other types of classes there was demonstrated a greater need for medical attention in that 51.8 per cent were given complete examinations.

The results are presented in detail in Table II. Table III shows the health status by individual grades in the Greater Vancouver Metropolitan Health Area. Among other things, it shows that the amount of attention devoted to physical examinations is greatest in Grade I.

Table I.—Summary of Health Status of Pupils in All Grades in All Schools in British Columbia, 1955 to 1960

Item	1955/56	1956/57	1957/58	1958/59	1959/60
Total pupils enrolled in grades examined	230,433	251,005	272,499	279,040	309,993
Total pupils examined	44,211	43,010	42,947	38,174	37,175
Percentage of enrolled pupils examined	19.2	17.1	15.8	13.7	12.0
Percentage of pupils examined with minor or no physical, emotional, or mental defects	76.6	78.9	85.8	84.5	84.5
Percentage of pupils examined having specified type and degree of defect—					
Physical 2	17.6	15.8	11.5	10.9	10.8
Emotional 2	3.8	1.0	3.4	3.8	3.7
Mental 2	1.3	0.1	1.5	1.8	1.8
Physical 3	1.2	4.3	0.7	0.8	0.8
Emotional 3	0.2	0.2	0.2	0.2	0.2
Mental 3	0.2	(1)	0.3	0.3	0.4
Physical 4	0.1	1.9	0.1	0.1	(1)
Emotional 4	(1)	0.3	(1)	0.1	(1)
Mental 4	(1)	0.3	0.2	0.2	0.4

[1] Less than 0.1 per cent.

Table II.—Health Status of Individual Grades of Total Schools, Including Greater Vancouver Metropolitan Health Area, 1959/60

Item	All Schools	Grade I	Grade II	Grade III	Grade IV	Grade V	Grade VI	Grade VII
Total pupils enrolled in grades examined	309,993	34,949	32,714	30,329	29,629	29,331	28,604	29,747
Total pupils examined	37,175	25,658	1,518	1,073	1,435	891	836	2,208
Percentage of enrolled pupils examined	12.0	73.4	4.6	3.5	4.8	3.0	2.9	7.4
Percentage examined with minor or no physical, emotional, or mental defects	84.5	85.4	80.3	84.4	82.0	84.3	85.5	86.0
Percentage of pupils examined having specified type and degree of defect—								
Physical 2	10.8	9.6	15.5	13.0	15.3	14.0	11.5	10.0
Emotional 2	3.7	3.5	5.0	3.1	2.9	2.9	3.1	3.7
Mental 2	1.8	1.5	2.5	1.6	1.3	1.6	1.0	1.9
Physical 3	0.8	0.7	1.1	0.9	1.0	1.1	1.0	0.7
Emotional 3	0.2	0.2	0.3	0.1	0.5	0.3	0.4	0.1
Mental 3	0.4	0.1	0.1	0.5	0.3	0.1	0.4	(1)
Physical 4	(1)	(1)	.....	0.3	0.1	0.1	.....	(1)
Emotional 4	(1)	(1)	.....	.....	.....	.....	0.2	(1)
Mental 4	0.4	0.1	0.1	.....	.....	0.1	0.1	.....

Item	Grade VIII	Grade IX	Grade X	Grade XI	Senior XII	Senior Matric.	Special Classes	Other Classes
Total pupils enrolled in grades examined	25,053	21,216	18,258	15,071	11,232	1,076	2,784	2,822
Total pupils examined	729	907	836	316	181	7	580	1,461
Percentage of enrolled pupils examined	2.9	4.3	4.6	2.1	1.6	0.7	20.8	51.8
Percentage examined with minor or no physical, emotional, or mental defects	84.2	83.0	87.9	88.3	90.1	100.0	49.8	81.0
Percentage of pupils examined having specified type and degree of defect—								
Physical 2	11.9	14.9	10.9	12.7	7.7	.....	25.5	13.9
Emotional 2	3.2	3.3	1.2	1.3	3.3	.....	22.6	5.3
Mental 2	0.8	0.9	.....	.....	.....	.....	24.8	1.2
Physical 3	0.7	1.0	0.7	0.3	.....	.....	3.6	0.8
Emotional 3	.....	.....	.....	.....	.....	.....	2.6	0.7
Mental 3	.....	0.2	.....	.....	.....	.....	14.3	0.3
Physical 4	.....	.....	.....	0.3	.....	.....	0.3	0.1
Emotional 4	.....	.....	.....	.....	.....	.....	0.3	.....
Mental 4	.....	.....	.....	.....	.....	.....	23.4	0.2

[1] Incidence of less than 0.1 per cent.

Table III.—Health Status by Individual Grades of Total Schools, Greater Vancouver Metropolitan Health Area, 1959/60

Item	All Schools	Grade I	Grade II	Grade III	Grade IV	Grade V	Grade VI	Grade VII
Total pupils enrolled in grades examined	108,132	11,591	11,097	10,218	10,002	10,040	9,826	10,319
Total pupils examined	16,158	10,882	713	566	513	481	461	603
Percentage of enrolled pupils examined	14.9	93.9	6.4	5.5	5.1	4.8	4.7	5.8
Percentage examined with minor or no physical, emotional, or mental defects	86.9	88.5	83.0	84.3	88.3	87.1	85.2	86.2
Percentage of pupils examined having specified type and degree of defect—								
Physical 2	8.6	7.4	10.4	9.4	9.4	10.0	11.1	9.6
Emotional 2	4.1	4.1	6.0	3.4	3.3	2.9	3.9	3.5
Mental 2	1.2	1.0	2.0	2.1	1.0	1.5	0.9	1.3
Physical 3	0.5	0.5	0.6	0.5	0.4	0.6	0.4	0.5
Emotional 3	0.3	0.3	0.4	0.2	0.2	0.6	0.7	0.3
Mental 3	0.2	0.1	------	0.4	------	0.2	0.4	0.2
Physical 4	(1)	(1)	------	0.4	------	------	------	------
Emotional 4	0.1	0.1	------	------	------	------	0.2	0.2
Mental 4	0.3	0.1	------	------	------	------	------	------

Item	Grade VIII	Grade IX	Grade X	Grade XI	Grade XII	Senior Matric.	Special Classes	Other Classes
Total pupils enrolled in grades examined	8,807	7,462	6,835	5,933	4,554	172	1,276	1,642
Total pupils examined	417	529	301	228	148	7	309	852
Percentage of enrolled pupils examined	4.7	7.1	4.4	3.8	3.2	4.1	24.2	51.9
Percentage examined with minor or no physical, emotional, or mental defects	83.2	83.4	84.1	89.5	89.9	100.0	54.0	80.8
Percentage of pupils examined having specified type and degree of defect—								
Physical 2	10.6	13.4	13.0	10.5	7.4	------	20.7	12.6
Emotional 2	3.4	3.2	2.0	------	4.1	------	12.3	7.0
Mental 2	0.7	0.8	------	------	------	------	7.8	1.6
Physical 3	0.2	0.8	0.7	------	------	------	1.6	0.6
Emotional 3	------	------	------	------	------	------	2.3	0.9
Mental 3	------	0.4	------	------	------	------	4.5	0.5
Physical 4	------	------	------	0.4	------	------	0.6	0.1
Emotional 4	------	------	------	------	------	------	------	------
Mental 4	------	------	------	------	------	------	13.6	0.1

[1] Incidence of less than 0.1 per cent.

Table IV.—Health Status of Individual Grades of Total Schools, Excluding Greater Vancouver Metropolitan Health Area, 1959/60

Item	All Schools	Grade I	Grade II	Grade III	Grade IV	Grade V	Grade VI	Grade VII
Total pupils enrolled in grades examined	201,861	23,358	21,617	20,111	19,627	19,291	18,778	19,428
Total pupils examined	21,017	14,776	805	507	922	410	375	1,605
Percentage of enrolled pupils examined	10.4	63.3	3.7	2.5	4.7	2.1	2.0	8.3
Percentage examined with minor or no physical, emotional, or mental defects	82.7	83.1	77.9	84.6	78.4	81.0	85.9	85.9
Percentage of pupils examined having specified type and degree of defect—								
Physical 2	12.5	11.2	20.0	17.2	18.7	18.8	12.0	10.2
Emotional 2	3.5	3.1	4.1	2.8	2.6	2.9	2.1	3.8
Mental 2	2.3	1.8	3.0	1.0	1.4	1.7	1.1	2.1
Physical 3	1.0	0.8	1.6	1.4	1.3	1.7	1.6	0.8
Emotional 3	0.2	0.1	0.1	.....	0.7	.....	.....	.....
Mental 3	0.5	0.2	0.1	0.6	0.4	.....	0.3	.....
Physical 4	(1)	(1)	.....	0.2	0.1	0.2	.....	0.1
Emotional 4	(1)	(1)	.....	.....	.....	.....	0.3	.....
Mental 4	0.5	(1)	0.2	.....	.....	0.2	0.3	.....

Item	Grade VIII	Grade IX	Grade X	Grade XI	Grade XII	Senior Matric.	Special Classes	Other Classes
Total pupils enrolled in grades examined	16,246	13,754	11,423	9,138	6,678	904	1,508	1,180
Total pupils examined	312	378	535	88	33	.....	271	609
Percentage of enrolled pupils examined	1.9	2.7	4.7	1.0	0.5	.....	18.0	51.6
Percentage examined with minor or no physical, emotional, or mental defects	85.6	82.5	90.1	85.2	90.9	.....	45.0	81.4
Percentage of pupils examined having specified type and degree of defect—								
Physical 2	13.8	16.9	9.7	18.2	9.1	.....	31.0	15.8
Emotional 2	2.9	3.4	0.7	4.5	.....	.....	34.3	2.8
Mental 2	1.0	1.1	.....	.....	.....	.....	44.3	0.7
Physical 3	1.3	1.3	0.7	1.1	.....	.....	5.9	1.0
Emotional 3	.....	.....	.....	.....	.....	.....	3.0	0.3
Mental 3	.....	.....	.....	.....	.....	.....	25.5	.....
Physical 4	.....	.....	.....	.....	.....	.....	.....	.....
Emotional 4	.....	.....	.....	.....	.....	.....	0.7	.....
Mental 4	.....	.....	.....	.....	.....	.....	34.7	0.3

[1] Incidence of less than 0.1 per cent.

Table V.—Immunization Status of Total Pupils Enrolled, According to School Grade, 1959/60

Grade	Total Pupils Enrolled by Grades	Smallpox		Diphtheria		Tetanus		Poliomyelitis	
		Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Total, all grades	309,993	227,735	73.5	240,567	77.6	216,942	70.0	275,339	88.8
Grade I	34,949	28,218	80.7	30,723	87.9	30,684	87.8	29,913	85.6
Grade II	32,714	26,529	81.1	28,823	88.1	28,727	87.8	29,137	89.1
Grade III	30,329	23,303	76.8	25,376	83.7	25,155	82.9	26,719	88.1
Grade IV	29,629	21,186	71.5	23,457	79.2	23,262	78.5	26,800	90.5
Grade V	29,331	22,634	77.2	23,211	79.1	22,950	78.2	26,506	90.4
Grade VI	28,604	22,951	80.2	23,874	83.5	22,855	79.9	26,091	91.2
Grade VII	29,747	21,164	71.1	22,483	75.6	19,026	64.0	26,284	88.4
Grade VIII	25,053	15,677	62.6	17,176	68.6	12,876	51.4	21,957	87.6
Grade IX	21,216	15,562	73.4	16,075	75.8	11,664	55.0	19,020	89.6
Grade X	18,258	12,324	67.5	12,371	67.8	8,185	44.8	16,464	90.2
Grade XI	15,071	9,420	62.5	8,388	55.7	5,847	38.8	13,555	89.9
Grade XII	11,232	6,347	56.5	6,217	55.4	3,687	32.8	9,916	88.3
Grade XIII	1,076	651	60.5	655	60.9	405	37.6	919	85.4
Special classes	2,784	1,769	63.5	1,738	62.4	1,619	58.2	2,058	73.9
Other	2,822	1,312	46.5	1,674	59.3	1,650	58.5	1,788	63.4

The additional tables ably demonstrate that the physical condition of the pupils, even those selected pupils, is at a fairly high standard, as 84.5 per cent of those examined exhibited either minor or no physical defect. In the Grade I classrooms, where routine physical examination is the rule rather than the exception, 85.4 per cent were in good physical condition. Thereafter, only referred pupils were given intensive medical examinations because of some suspected medical reason, yet a high percentage, never lower than 82 per cent, were found to be physically sound. These findings are justifiable demonstrations for the change that has occurred in the school health programme toward a decrease in routine physical examinations for all pupils. Certainly, if only a small proportion of those selected for reason of possible physical, emotional, or mental defect are found to be medically defective, it seems obvious that the great majority of pupils enrolled must enjoy a fairly high standard of normal health.

Some mention should be made of the findings of the examinations amongst pupils in the special and other classes; the table reveals that these pupils, already handicapped, show the greatest proportion of physical defect (29.4 per cent), emotional defect (25.5 per cent), or mental defect (62.5 per cent). The much greater increase in the findings of mental defectiveness is probably the result of the increased enrolment in these special classes, which has grown by 45 per cent from an enrolment of 1,923 the previous year to an enrolment of 2,784 this past year. It is a further reflection on the efforts being made in the existing educational system to provide educational opportunities for these children.

The amount of mental and emotional trauma in the regular grades in school becomes apparent through the newer classification of health status of the pupil now in operation for five years; it permits comparisons of this year with past years. In making this comparison it is evident that some adjustment on the part of the examiners was reflected in the earlier years as the amount of emotional and mental defect showed a consistent increase year by year, but for the past two years it has become almost constant.

It is evident that the number of children selected for examination for reasons of mental or emotional instability does not vary greatly from grade to grade. It should also be noted that the pupil seems to be able to adjust to the school pro-

gramme without any undue upset, maintaining a fairly constant emotional equilibrium throughout.

The immunization status of the school pupil has shown further improvement this year over that of previous years. It is evident from Table V that the majority of the pupils (over 70 per cent in each category as compared with over 65 per cent in each category for last year) have become immunized, the greater proportion against poliomyelitis. The poliomyelitis immunization is a reflection of the increased incidence of that disease that was occasioned in the latter part of 1959 and the early part of 1960, resulting in greater emphasis being directed toward complete immunization to that disease; to this must also be added the increased use of multivalent vaccine, which has been additionally reflected in the increase in the numbers immunized against diphtheria and tetanus. A very gratifying increase in the number immunized to smallpox has been shown (73.5 per cent this year as compared to 69.6 per cent the previous year); this is probably indicative of concentration on immunization by local health services throughout the Province, who have been carrying on an encouraging educational programme to increase the immunity status of the total population.

However, complacency in respect to immunization must not be allowed to develop, since, even although there is a larger proportion of the pupils immunized, there still remains a considerable non-immunized reservoir of approximately 25 per cent in all categories. It is amongst this group that disease incidence can develop as a threat to the community health generally. Therefore, continued emphasis upon immunization for all pupils is desirable if the community is to remain free from major communicable infections.

The minor communicable infections common to childhood are no longer routinely reportable; it is known that these are prone to occur cyclicly every four or five years, decreasing as an immune population develops from experience with the infection. They do create a consistent volume of school absenteeism but do not constitute a major threat to the health of the average school-child. Some of them are complicating factors in pregnancy, and the likelihood of the pupil's transmitting the infection to expectant mothers always poses a community problem. For that reason, consideration now being directed toward development of biologicals for control of these infections merits attention and is being viewed with some interest in the medical literature.

The major communicable infections—streptococcal, staphylococcal, diphtheria, and poliomyelitis—are a challenge to the health of the people. Poliomyelitis was of serious consequence in certain areas of the Province during 1960, recording 165 cases (a rate of 10.3 per 100,000 population), as against 132 cases the previous year (a rate of 8.4 per 100,000 population). There were also recorded twelve deaths. This general Provincial incidence was reflected in the school population as forty-two of the cases and three of the deaths occurred in this age-group. This was the highest incidence rate for poliomyelitis since 1955 and leads to some conjecture as to what the situation might have been had not poliomyelitis immunization been available. It is known that poliomyelitis immunization does not confer complete protection. Of the forty-five school-aged patients who did develop the paralytic disease, thirty-two were credited with a complete series of poliomyelitis vaccine.

While there was a drop in the incidence of scarlet fever from the high of 244.5 per 100,000 population last year to a rate of 98.1 per 100,000 population for this year, nevertheless streptococcal sore throat maintained a fairly consistent high rate at 39.4, slightly lower than the rate of 46.1 of last year, and, after that figure, the highest in the Province on record. The reasons for this disparity are

probably based on the use of antibiotics and chemotherapeutic drugs which restrict the infection to the sore throat phase, preventing it from progressing to the scarlet fever phase. In general, the outbreak remained mild and did not create the complications formerly associated with this infection, although it did create some school absenteeism. In any case, the gradual increase in the rheumatic fever prophylaxis programme is seemingly justified, since streptococcal infections are basically the factor behind the rheumatic fever condition. Antibiotics are limited in usefulness in the treatment of the acute stages of rheumatic fever but are very useful in preventive recurrences to which these patients are prone. Thus the protection of the patient from further attacks of streptococcal infections which might again aggravate the rheumatic condition to the extent of permanent heart damage is well justified. The experience garnered over the past year and a half has indicated the value of this programme, and it has now been extended to the Province as a whole, receiving support from the Canadian Medical Association (British Columbia Division) and financial assistance through the National Health Grants, which permits purchase of the necessary drugs. It is an additional service geared to the protection of the health of the school-child, amongst whom rheumatic infections are most likely to occur.

Infectious hepatitis occurred this year in almost the same degree as in the past year, with a rate of 57.5 per 100,000 population, compared to a rate of 57.7 the previous year. It is also a creator of school absenteeism and a factor influencing school health. Gamma globulin has been distributed as a control medium, but its use is restricted and it is not available for individual protection.

Gastrointestinal infections of the Salmonella-Shigella type were of major consideration throughout the year. Salmonella infections, with a rate of 27.0 per 100,000 population, were increased over the rate of 22.6 during 1959, while Shigella infections showed the highest rate of the past five years at 74.2 per 100,000 population. In an incidence of this degree there are many childhood patients, and these have their reflection on the health of the school pupil, causing a considerable degree of illness among them. Fortunately, complications are rare and their effects are not lasting, the major consideration being the carrier state that follows, posing problems to the community population generally.

For the third consecutive year no cases of diphtheria were recorded, possibly again resultant from the higher levels of immunity status now being recorded to this infection.

COMMUNITY HEALTH CENTRES

The plan to provide financial assistance toward the construction of community health centres, which had its origin in 1951 through the policy originating with National Health Grants, continues to provide new accommodation for health unit services throughout the Province. The proposal provided that designs for such construction should originate in the community, sparked either by municipal authorities or some service club, who would undertake to raise community funds for the construction. With community interest definitely established and negotiations under way in the planning of a building, a formal request was presented in each case for Provincial and National assistance through Provincial grants and National Health Grants toward financing the construction. In addition to the grants available through the senior governments, grants from voluntary health agencies have been forthcoming from the British Columbia Tuberculosis Society, the British Columbia Cancer Society, Canadian Red Cross Association (British Columbia Division), the British Columbia Foundation for Child Care, Poliomyelitis and Rehabilitation, St. John Ambulance Association, and others. These funds augment

the financing to permit construction of health centres in which offices and workrooms for the voluntary health agencies are provided in addition to the administration and clinic accommodation for the official health agency. This means that the community health centre then becomes the focal point for the administration of all community health services, both official and voluntary, permitting co-ordination of these services in the community interest.

(Photo by D. McD. Ramsay.)

At Quesnel in the Cariboo Health Unit is a typical new health centre, officially opened on March 12th, 1960.

During this past year further construction of community health centres brought the total to date to fifty. This has entailed a total capital outlay of $2,649,094.95, of which National and Provincial grants have contributed $1,005,231.32. Construction of community health centres within the Greater Vancouver Metropolitan Health Service has provided seven community health centres in that area at a total cost of $927,484.67, while the rest of the construction has been attained in the headquarters and sub-offices of the various health units throughout the Province.

During the year just concluded, newly constructed accommodation became available at Health Unit No. 4 in South Vancouver, Creston and Kimberley in the East Kootenay Health Unit, Quesnel in the Cariboo Health Unit, Ladysmith in the Central Vancouver Island Health Unit, Coquitlam in the Simon Fraser Health Unit, and at Kitimat in the Kitimat Public Health Nursing District. At the close of the year, construction was well under way on new accommodation at Golden, Michel-Natal, and Field in the East Kootenay Health Unit, at Matsqui-Sumas-Abbotsford in the Upper Fraser Valley Health Unit, at Prince Rupert in the Skeena Health Unit, while planning for new accommodation was under way at Princeton in the South

The official opening of the new Creston Health Centre by the Minister of Health Services and Hospital Insurance, the Honourable Eric Martin, May 11th, 1960. The Minister is shown exchanging handshakes with Mr. Ed Reber, Chairman of the Building Committee of the local Kiwanis Club.

The Minister of Health Services and Hospital Insurance, the Honourable Eric Martin, pauses during his tour of the new Creston Health Centre to inspect the exhibit of the Canadian Cancer Society, May 11th, 1960. Others in the group are, left to right: Mr. J. B. Yuill, member of the East Kootenay Union Board of Health; Mr. C. W. Allan, Chairman of the Creston Village Council; Mr. Harry Erskine, Chairman, East Kootenay Union Board of Health; and Dr. J. A. Taylor, Deputy Provincial Health Officer.

Okanagan Health Unit, Campbell River and Powell River in the Upper Island Health Unit, at Hope in the Upper Fraser Valley Health Unit, at Castlegar in the West Kootenay Health Unit, at 100 Mile House in the Cariboo Health Unit, and at Saanich in the Saanich and South Vancouver Island Health Unit. In addition, negotiations toward community health centres were under way at Nelson, the headquarters of the Selkirk Health Unit; at Chilliwack, the headquarters of the Upper Fraser Valley Health Unit; at Sechelt, the headquarters of the Howe Sound Nursing Area; and at Clinton, a proposed new sub-office in the South Central Health Unit. In addition, some negotiation had been undertaken toward the planning of a new Chest Centre in Victoria for the Island Travelling Clinic. This means that, with the planning that is now under way, priority lists have been established well into the fiscal year 1962/63.

In two instances the official opening of community health centres led to them honouring the names of two pioneers in public health in this Province who had contributed so much toward the growth of public health, one in the field of public health nursing and the other in the field of public health administration, both of whom had sparked community interest toward the construction of the health centres. The first was the Eileen Ramsay Memorial Health Centre at Quesnel in the Cariboo Health Unit, named to honour Mrs. Eileen Ramsay, senior public health nurse in the Quesnel area for the past fourteen years. The second was the Stewart Murray Community Health Centre in South Vancouver, honouring the senior administrator of the Greater Vancouver Metropolitan Health Service for the past twenty-two years, who had contributed so greatly to its development in its formative years and latterly in its developmental years as it enlarged to provide service to a mushrooming population.

DISEASE MORBIDITY AND STATISTICS

No major outbreaks of communicable disease occurred in British Columbia during the year just past. The increased incidence of poliomyelitis (from 132 cases in 1959 to 165 in 1960) and bacillary dysentery (from 336 cases in 1959 to 1,192 in 1960) are of particular interest. The 724 cases of food poisoning doubled the 1959 figure of 366. Viral or aseptic meningitis showed an increase from 82 cases in 1959 to 257 cases in 1960. Streptococcal infections, manifesting themselves as sore throats or frank scarlet fever, were diagnosed only half as often as during the previous year. This reversed the trend of the previous two years.

The total reported disease morbidity for 1960 was 1,030.1 per 100,000, which was not significantly different from the previous year. In spite of the fact that all of the more serious communicable diseases are reportable to the Medical Health Officer of the area in which they occur, some cases are never brought to his attention. The disease picture of a Province is therefore influenced to a considerable extent by the degree of completeness in reporting. In recent years a number of steps have been taken which, it is felt, now make notification reasonably complete for most conditions.

Physicians are no longer asked to report the minor diseases such as chicken-pox or rubella, and the Health Branch offers the private physician diagnostic tests, free treatment, or prophylactic drugs for a growing number of the more important diseases, which act as an incentive to reporting.

There were 165 cases of paralytic poliomyelitis reported, which is 33 more than in 1959. Suspect non-paralytic poliomyelitis was not recorded as such, but was grouped with other meningitides that appeared to be of viral origin. The identity of the responsible virus was determined in only a few such cases; nevertheless, it was apparent from Medical Officers' reports that many of the immediate contacts to

patients with paralytic poliomyelitis were suffering from a non-paralytic form of the same disease. Twelve deaths occurred from this disease, giving a case fatality rate of 7.3, which is an improvement over the previous year.

Paralytic Poliomyelitis Case Fatality Rate, British Columbia

Year	Paralytic Cases	Deaths	Case Fatality Rate
1953	439	26	5.9
1954	107	6	5.6
1955	143	3	2.1
1956	37	3	8.1
1957	25	----	-----
1958	12	3	25.0
1959	132	14	10.6
1960	165	12	7.3

Again this year, poliomyelitis was concentrated in the rural parts of the Province, with only 22 cases (13.3 per cent of the total) occurring in Metropolitan Vancouver, New Westminster, and Victoria.

The Royal Canadian Air Force continued to offer its services for air evacuations, and all poliomyelitis patients on the Mainland with respiratory involvement, who were well enough to be moved, were transported to the poliomyelitis centre in Vancouver. A new type of respirator supplying air under positive pressure to the patient's lungs through a tracheotomy was put into use and undoubtedly contributed much toward making the flight less of a shock to these desperately ill patients.

The two poliomyelitis centres in Vancouver and Victoria continued to function well, though at times both were hard pressed to find accommodation for all who needed care. In Vancouver it was found necessary to reconstitute the Poliomyelitis Committee under the chairmanship of the late Dr. Stewart Murray in order to coordinate the activities of the various city hospitals caring for these patients.

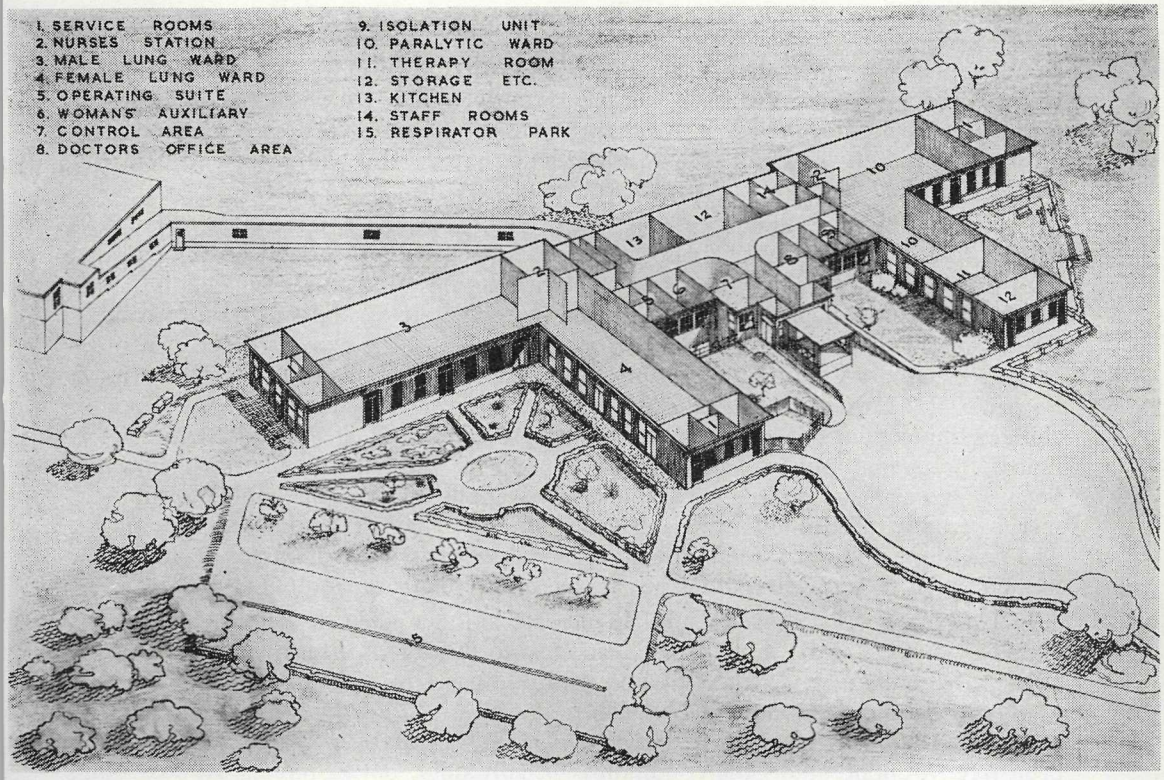
The Children's Hospital, the G. F. Strong Rehabilitation Centre, Princess Margaret Children's Village, and the Queen Alexandra Solarium in Victoria all deserve great credit for the way in which they have accepted patients past the acute stage of their illness from the poliomyelitis centres, thus making sure that beds were always available at the latter for acutely ill cases.

Throughout 1960 poliomyelitis vaccine was offered to citizens of all age-groups. In infants, pre-school and school children, this vaccine was combined with routine immunization, and all children have made available to them the initial immunization and also booster doses at least every five years.

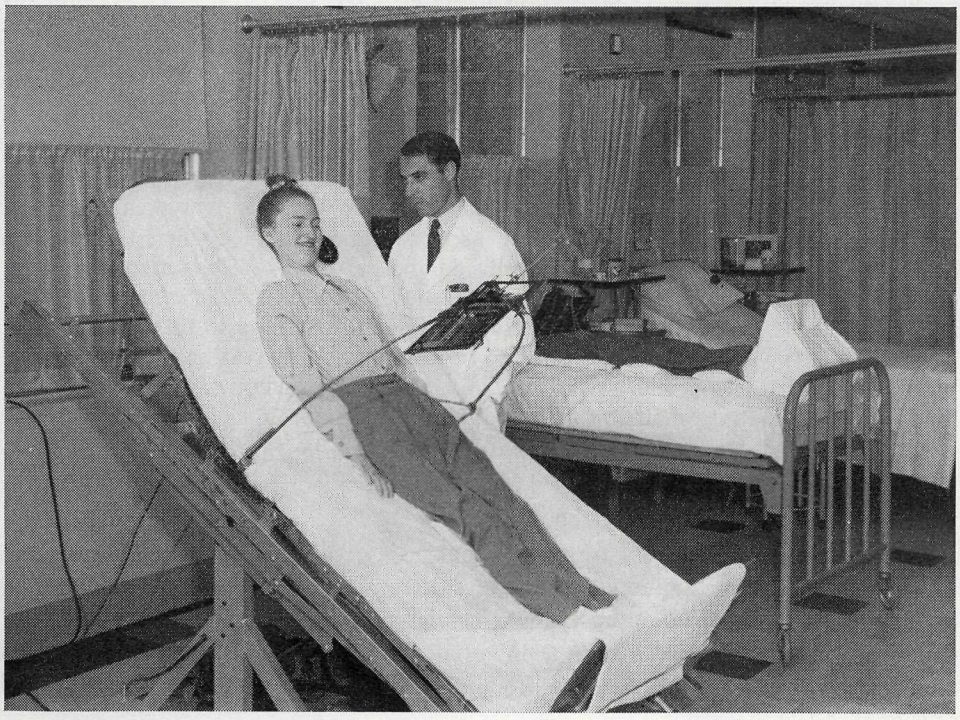
Adult immunization clinics were conducted in many centres throughout the Province by both health unit personnel and private physicians, who generously contributed their time. The British Columbia Foundation for Child Care, Poliomyelitis and Rehabilitation continued to supply funds and lay assistants for the operation of the clinics and, in addition, conducted a very extensive advertising campaign. The Victoria Medical Association conducted a very successful immunization clinic on its own initiative in that city.

During the year 691,124 doses of vaccine were supplied, and it is estimated that probably close to 90 per cent of our population under 18 years has now received the recommended three doses of poliomyelitis vaccine.

Again this year half the cost of the poliomyelitis vaccine was taken from National Health Grants, thereby allowing the Province to offer this product on an unrestricted basis.



Architect's "cut-away" drawing of Poliomyelitis Pavilion.



The Poliomyelitis Pavilion houses major equipment for treatment of convalescing patients. The rocking-bed, which facilitates respiration, is here shown in use.

The incidence of infection hepatitis continued at its usual high level, and the Health Branch continued to issue immune serum globulin free of charge as a prophylactic measure to contacts of this disease. An investigation has been initiated in a rural health unit where this disease is particularly prevalent with a view to determining the effectiveness of this product at the dosage now being used.

For the third year in succession British Columbia has not recorded a single proven case of diphtheria. This does not, of course, mean that mild cases of this disease have not occurred, but does indicate the extremely low level of infection that has been reached. It should not be assumed that this state of affairs has come about through immunization procedure alone, since, on the average, only 78 per cent of our school-children are protected, and in the senior grades this drops to as low as 55 per cent. Most adults used to be immune to diphtheria from repeated minor childhood infections that slowly built up their protection. Their immunity was continued throughout life by frequent casual contacts with the diphtheria bacillus. Such is obviously no longer the case, and many adults are now susceptible to diphtheria because their immunity, given artificially at school, has not been kept up. The time has come when adults should be urged to renew their immunity regularly, particularly if they travel to areas not as free of diphtheria as is this Province.

This year there has been a marked increase in the number of cases of bacillary dysentery, which has been of particular interest to the Health Branch: 1,192 cases of the disease were reported, compared with 336 cases in 1959 and 293 in 1955. Many more mild cases undoubtedly occurred as well. In nearly every instance the responsible organism has been *Shigella sonnei,* and few areas of the Province have been free. Among adults the condition is usually mild, but in infants the loss of fluid and toxic effects are more serious. There was one infant death. The cause of this rapid increase in cases this year is not clear. Numerous summer-camp outbreaks in the past years have, without a doubt, been responsible for seeding the Province with mild cases or convalescent carriers serving as local foci. It has been suggested that imported fruit and vegetables might be the source of infection; however, this seems unlikely as the Province of Alberta and the State of Washington, who secure similar shipments, have not had an excessive number of cases of shigellosis.

The other gastrointestinal infection that has shown an increase is salmonellosis, with food as the vehicle of infection in most instances. This year 434 cases were reported, which is an increase of 22.3 per cent over 1959. A typical outbreak involving sixty-nine guests and caterers at a wedding supper occurred in a rural centre during the year. As a result, the bride and groom, as well as a good number of the guests, required hospital care. Two different strains of *Salmonellæ* were isolated, and the turkey, ham, and pastry served were all found to be contaminated. The fact that these outbreaks continue to occur so frequently at banquets prepared by untrained caterers points to the need for and value of constant supervision of food-handling establishments by trained sanitary inspectors.

Two related organisms, *Salmonella typhi* and *Salmonella paratyphi,* which are the cause of typhoid and paratyphoid fever, were also isolated more frequently this year, with 25 cases in all being reported.

During the past few years some outbreaks of typhoid fever have been traced to roadside-ditch water contaminated by direct discharges from septic tanks connected to houses inhabited by chronic typhoid carriers. It is possible that this type of contamination will continue to be a potential danger as long as suburban developments are allowed to spring up without provision being made for water-carried sewage-disposal.

There were 962 cases of pertussis reported, which, although up from 1959, is considerably below the average for the last five years. Every infant receives pertussis vaccine as part of his routine immunization, and an attempt is now being made to see that a final booster is given to every child at the time of starting school so that absenteeism through this disease in the early school years will be reduced to a minimum.

While the incidence of streptococcal infection in Canada more than doubled in 1960 as compared with 1959, British Columbia showed a decrease in these reports from 4,563 cases in 1959 to 2,209 cases this year. It should be noted that the number of these infections tends to fluctuate from year to year.

Seven cases of trichinosis were reported this year, to mark the first important occurrence of this disease in British Columbia for some time. All the cases were related to the eating of uncooked pork obtained from a single source in Vancouver. Through the co-operation of Federal, Provincial, and municipal health authorities, the suspect pork has been traced to the farm of origin, and tests are now being conducted to determine whether more pigs are infected.

Table VI.—Notifiable Diseases in British Columbia, 1956–60 (Including Indians)

(Rate per 100,000 population.)

Notifiable Disease	1956		1957		1958		1959		1960	
	Number of Cases	Rate	Number of Cases	Rate	Number of Cases	Rate	Number of Cases	Rate	Number of Cases	Rate
Botulism	.....	.....	3	0.2	1	0.1	.....	.....	.....	.....
Brucellosis	4	0.3	2	0.1	2	0.1	6	0.4	3	0.2
Cancer	3,115	222.7	4,150	279.0	4,103	265.7	3,968	252.7	4,347	270.7
Diarrhœa of the new-born	(1)	(1)	(1)	(1)	(1)	(1)	53	3.4	24	1.5
Diphtheria	1	0.1	5	0.3	.....	.....	.....	.....	.....	.....
Dysentery, amœbic	.....	.....	4	0.3	6	0.4	1	0.1	2	0.1
Bacillary	342	24.5	132	8.9	936	60.6	336	21.4	1,192	74.2
Unspecified	(1)	(1)	(1)	(1)	(1)	(1)	62	3.9	319	19.8
Food poisoning—										
Staphylococcal intoxication	(1)	(1)	(1)	(1)	(1)	(1)	8	0.5	238	14.9
Salmonella infections	187	13.4	259	17.4	292	18.9	355	22.6	434	27.0
Unspecified	(1)	(1)	(1)	(1)	(1)	(1)	3	0.2	52	3.2
Hepatitis, infectious	343	24.5	393	26.4	558	36.2	907	57.7	924	57.5
Malaria	1	0.1	1	0.1	2	0.1	.....	.....	3	0.2
Meningitis, viral or aseptic—										
Due to polio virus	(1)	(1)	(1)	(1)	(1)	(1)	3	0.2	137	8.5
Due to Coxsackie virus	(1)	(1)	(1)	(1)	(1)	(1)	23	1.5	36	2.3
Due to ECHO virus	(1)	(1)	(1)	(1)	(1)	(1)	.....	.....	1	0.1
Other and unspecified	(1)	(1)	(1)	(1)	(1)	(1)	56	3.6	83	5.2
Meningococcal infections	45	3.2	35	2.4	25	1.6	31	2.0	16	1.0
Ornithosis	.....	.....	13	0.9	.....	.....	1	0.1	.....	.....
Pemphigus neonatorum	(1)	(1)	(1)	(1)	(1)	(1)	3	0.2	5	0.3
Pertussis	987	70.6	941	63.3	1,427	92.4	680	43.3	962	59.9
Poliomyelitis, paralytic	37	2.6	25	1.7	12	0.8	132	8.4	165	10.3
Rabies in man	.....	.....	.....	.....	1	0.1	.....	.....	.....	.....
Scarlet fever	645	46.1	325	21.9	1,098	71.1	3,839	244.5	1,576	98.1
Streptococcal sore throat	171	12.2	115	7.7	172	11.1	724	46.1	633	39.4
Tetanus	3	0.2	2	0.1	1	0.1	3	0.2	2	0.1
Trichinosis	.....	.....	.....	.....	2	0.1	.....	.....	7	0.4
Tuberculosis	1,311	93.7	1,338	90.0	1,128	73.1	1,200	76.4	1,173	73.0
Tularæmia	1	0.1	.....	.....	.....	.....	.....	.....	.....	.....
Typhoid fever	32	2.3	6	0.4	8	0.5	4	0.3	5	0.3
Paratyphoid fever	32	2.3	10	0.7	22	1.4	12	0.8	20	1.2
Venereal disease—										
Gonorrhœa	3,442	246.1	3,806	256.0	3,426	221.9	3,353	213.5	3,573	222.5
Syphilis (includes non-gonorrhœal urethritis, venereal)	763	54.6	748	50.3	582	37.7	545	34.7	609	37.9
Other (chancroid)	6	0.4	2	0.1	3	0.2	6	0.4	2	0.1
Totals	11.468	820.0	12,315	828.2	13.807	894.2	16,314	1,039.1	16,543	1,030.1

[1] Not notifiable prior to 1959.

Over the past three or four years, seven bats, of the hundreds examined in British Columbia, have been found to be infected with rabies virus. No human cases have occurred despite the fact that a number of these bats have been handled, and a few people have been bitten by these infected mammals. No other animals have been found to be infected in British Columbia for a number of years.

Morbidity can occur from other things than communicable disease, and an important factor is accidents. The Health Branch has this year been active in two particular aspects of this problem.

The British Columbia Poison Control Council and the local health services of the Health Branch, together with thirty-four urban and rural hospitals, are collaborating in an active poison-control programme. Information centres have been established in most hospitals, where details of the constituents of and antidotes to most poisonous substances are recorded. In addition, an educational programme, which includes home visits by public health nurses to victims of poisonings, is being undertaken. A detailed statistical record of all accidental poisonings is also being kept.

In the field of motor-vehicle accidents a most interesting study is being carried out at the University of British Columbia by a team led by a Provincial health unit director on leave of absence from his regular duties, and under the sponsorship of the Department of Preventive Medicine, Faculty of Medicine. Figures and data are being compiled on all traffic accidents involving children under 16 in Vancouver for one year. It is hoped that the information gained will be of real value in determining how best to meet this serious problem, which has become a much more frequent killer than communicable disease.

REPORT OF THE BUREAU OF SPECIAL PREVENTIVE AND TREATMENT SERVICES, VANCOUVER

G. R. F. ELLIOT, DIRECTOR

There have been no material changes in the basic organization structure of this Bureau during the year. The main elements of the organization are the Bureau headquarters and the Divisions of Tuberculosis Control, Venereal Disease Control, and Laboratories. Within the headquarters element, a new section called the " Registry and Rehabilitation Services " was created during the year; it reflects an integration of the rehabilitation and crippled children's registry services, which had previously operated as relatively independent entities. The registry function was extended to include provision for registration of handicapped adult cases. A report on the activities of this service is presented on page 110.

Liaison with voluntary health agencies in the Province has continued to be a responsibility of this Bureau. Brief reports on the activities of most of these agencies are presented below.

The cordial relationships which have existed with the Faculty of Medicine, University of British Columbia, have continued and contribute substantially to the development of public health services in this Province.

In June the Deputy Minister of Mental Health and some of his senior staff moved their administrative headquarters to offices on the seventh floor of the Provincial Health Building in Vancouver. This proximity of offices of the Mental Health Branch and Health Branch services has afforded an opportunity to extend the close and cordial relationships which have existed for many years.

ADMINISTRATION

There have been no major changes in administration during the year. In last year's report, brief reference was made to the introduction of a progressive patient-care programme in the Division of Tuberculosis Control. It was started in November, 1959, and it is now evident that it has been an eminently successful venture. The standard of service to in-patients has improved, while substantial reductions in costs have been achieved. The reduction in salary costs alone at Pearson Hospital amounts to some $46,000 per annum. The problems involved in the introduction of this programme were very difficult indeed; that it has nevertheless succeeded so well, especially at Pearson Hospital, is a tribute to senior staff of that unit.

An interesting development in the personnel field is the extremely low turnover of personnel. There are about 575 full-time jobs in the Bureau; the monthly number of separations has not exceeded twenty and has been as low as four during the year. The reasons for this improved situation are difficult to determine, but it seems probable that fewer job opportunities in the community generally and improved working conditions in the Service are major contributory factors.

On April 1st, 1960, Dr. C. L. Hunt, who had been associated with the Bureau for many years in various part-time and full-time appointments, assumed directorship of the Registry and Rehabilitation Services.

VOLUNTARY HEALTH AGENCIES

The valuable contribution of these various agencies to the development of public health services has continued during the year. The major activities of those which receive direct financial assistance from the Provincial Government are briefly reported below.

Alcoholism Foundation of British Columbia

The Alcoholism Foundation of British Columbia received an increased grant from the Provincial Government in 1960, and this provided for the expansion of services in several areas. The staff of the education department was increased, and the general programme of preventive education was stepped up. One-day institutes on alcohol problems were held in various centres throughout the Province, often in co-operation with local health services. They were well received and have been responsible for fostering greater community interest in treatment and preventive programmes. The residential facilities of the Foundation were increased in July, when arrangements were completed with a private hospital to provide several beds for female patients. The clinical services were extended when a travelling clinic service was inaugurated in July to serve the Kamloops-Okanagan area. The travelling clinic team provides diagnostic, treatment, and health education services throughout the area.

Throughout the Province there is a growing recognition that alcoholism is a medical-social problem of enormous proportions, and that there is a great need for the development of diversified resources to combat it. The Foundation offers its technical advice and services to any community that wishes to embark upon an alcoholism control programme.

British Columbia Cancer Foundation

The British Columbia Cancer Foundation in 1949 was designated by the Provincial Government to be the recognized agent for the diagnosis and treatment of cancer in the Province of British Columbia. Operations at the British Columbia Cancer Institute, the Victoria Cancer Clinic, the thirteen consultative cancer clinics at centres throughout the Province, and the boarding home attached to the Cancer Institute in Vancouver are the responsibility of the Cancer Foundation. Operational expense is provided by the Cancer Control Grant of the National Health Grants and by a matching grant from the Provincial Government, plus fees from private patients.

An extensive programme of expansion is being undertaken by the Cancer Foundation. At the British Columbia Cancer Institute in Vancouver, new permanent quarters have been constructed for the Cytology Department, the Diagnostic X-ray Department, the Social Service Department, and the New Patients Clinic. The boarding home has been enlarged from a bed capacity of 36 to 56 by finishing the top floor of the building. Work is under way on the construction of larger quarters for the Radiotherapy Department, where a second Cobalt 60-unit will be installed as soon as the building is ready. Accommodation is also being provided for further supervoltage equipment at a later date.

In Victoria new premises are being provided for the Victoria Cancer Clinic at the Royal Jubilee Hospital. The Cancer Foundation is sharing in the cost of the new building and will provide a small Cobalt 60-unit when the building is finished.

British Columbia Medical Research Foundation

This has been the first full year of operation of the British Columbia Medical Research Foundation since its constitution was revised to convert the organization from one which operated its own research laboratories to one which supports medical research by making grants to medical scientists working in the University of British Columbia and in the major hospitals in the Province. All applications are

carefully reviewed by a well-qualified Medical Board, and every effort is made to ensure that the funds of the Foundation are devoted to the support of important research projects whose financial requirements cannot be met by the current programme of existing private and governmental agencies. In 1960 grants totalling $47,000 were made in support of sixteen projects representing a wide range of investigations in the fields of basic and medical research.

During the past year the Foundation's non-governmental sources of financial support included an allocation from the Community Chest and Councils of the Greater Vancouver area, gifts and bequests from private individuals, and a generous grant from the Leon and Thea Koerner Foundation.

Canadian Arthritis and Rheumatism Society (British Columbia Division)

About 4,000 patients were referred to the Canadian Arthritis and Rheumatism Society for general service during 1955, while in 1959 there were over 4,400 patients treated, and, of these, about 3,150 were new or reopened cases. In addition, 918 patients were referred for special services as described in previous reports. Of the total patients having general service, 919 had disabilities from diseases other than arthritis.

Statistical assessment of all patients before and after receiving physiotherapy is made according to a functional capacity code. Improvement during 1959 was shown in 86 per cent of those in the under-40 age-group, in 81 per cent of those in the 40–64 age-group, and in 78 per cent of those in the over-64 age-group.

Every effort is made to restore to useful living those patients who have achieved maximum function. Courses are arranged where needed and work found for those able to return to remunerative employment. Some, however, are unable to work in a competitive field, and, for 138 of these, instruction in arts and crafts has been supplied. Thirty have achieved a sufficiently high standard of skill to produce saleable articles. These articles are sold on the open market with financial returns to the patients, some of whom have become independent of social assistance by this means.

An in-patient treatment programme for children with rheumatic disease has been established for in-patients in collaboration with Princess Margaret Children's Village. This complements the juvenile rheumatoid arthritis programme for out-patients at the Canadian Arthritis and Rheumatism Society Medical Centre. The course of the disease is being documented and the programme supervised by the Director, Kinsmen Laboratory of Neurological Research at the University of British Columbia.

Because of the increased need for treatment service, a unit has been established in the Peace River area. A full-time physiotherapist is employed who treats ambulatory patients in the health centres in Dawson Creek and Fort St. John and the home patients by means of the mobile unit. Burns Lake also received regular visits from the Prince George physiotherapist during 1960.

A Canadian Arthritis and Rheumatism Society research unit into the rheumatic and connective tissue diseases has been established under the direction of an Associate Professor in the Department of Medicine at the University of British Columbia. Canadian Arthritis and Rheumatism Society bequest funds will support this unit for ten years, after which the University will assume responsibility.

An authority on gout from Chicago was the Canadian Arthritis and Rheumatism Society's lecturer at the University of British Columbia this year. He aroused

considerable interest amongst the doctors, medical students at lectures, and during ward rounds.

Five bursaries have been awarded to enable British Columbia girls to take physiotherapy training. Job-study prizes, slides for teaching purposes, and a refresher course in physiotherapy and occupational therapy have been arranged to promote or improve the understanding of the use of physiotherapy and occupational therapy in the control of rheumatic disease.

Narcotic Addiction Foundation of British Columbia

During the year 1960 there was a marked increase in the number of patients who voluntarily requested services from the Narcotic Addiction Foundation. In comparison with 1959, when 97 patients sought help, a total of 243 patients (175 men and 68 women) came for treatment, mostly withdrawal, from heroin addiction. In the continuing absence of a residential treatment unit for female patients, only male patients could be accepted for in-patient treatment and attempts at rehabilitation. In all, there was a total of fifty admissions and readmissions, and in these patients withdrawal treatments were completed.

Unfortunately, attempts at rehabilitation are severely limited by the very great difficulties that the addict faces in being reintegrated into society, particularly in the area of successful employment. It is here that the community can play a major part, if it understands the problems and the needs. A continuing programme of community education has been carried out, but a great deal more still requires to be done. In this field, and in the most important one of research, the needs of the Foundation are being more clearly understood. It is hoped that in the coming year the research and education departments will have the staff and facilities necessary to carry out the studies essential to a fuller understanding of this difficult problem, and that the community will be better advised on the role it must play in after-care and rehabilitation.

G. F. Strong Rehabilitation Centre

The primary object of the Centre is to provide comprehensive rehabilitation services, on an in-patient and out-patient basis, to disabled children and adults in the Province of British Columbia. This object is fulfilled through the extensive and specially designed physical facilities owned and operated by the Centre, through its large multi-disciplined professional staff and through integrated relationships that the Centre has with other agencies in the community.

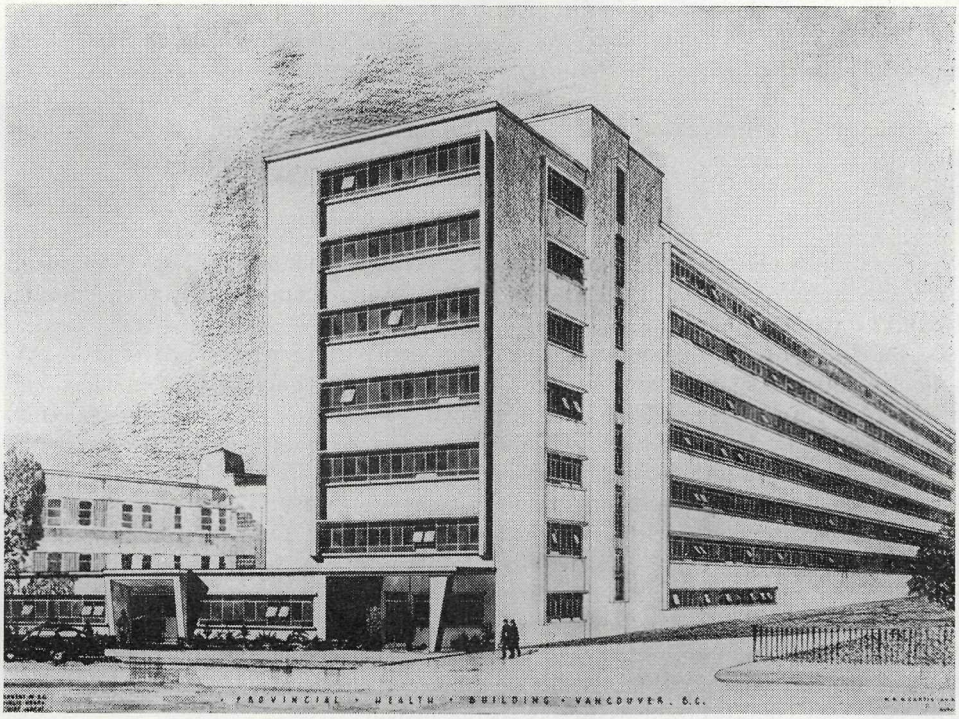
During 1959, 21 per cent more patients were admitted to a programme of rehabilitation than in the previous year. Based on statistics to October 31st, 1960, it is anticipated that the Centre's level of activity for the current year will be slightly in excess of the high level reached in 1959.

The Centre continues to provide floor space and other facilities for the Canadian Arthritis and Rheumatism Society.

The continued expansion of all services in the Centre is seriously overtaxing the designed capacity of the building, making efficient and effective provision of services increasingly more difficult. A large multi-story addition has been planned, and it is hoped that a start on this project may be made in the near future.

The Centre's professional training programme provides internships each year for physiotherapists and occupational therapists. Orientation courses in rehabilitation are regularly arranged for student social workers and physical education instructors. Last year arrangements were made to provide, in the Centre, a year's resident training in rehabilitation for a physician. Many of the training-hours con-

tributed by Centre personnel are devoted to student-nurses, public health nurses, pædiatric and other graduate nurses, who are introduced, by a practical demonstration of the Centre's programme in operation, to the spectrum of disease and injury treated.



The Provincial Health Building at 828 West Tenth Avenue in Vancouver, opened in 1955, houses all offices of the Health Branch in Vancouver, with a connection to the near-by offices of the Division of Tuberculosis Control. In 1960 the administrative offices of the Mental Health Services Branch were accommodated.

NATIONAL HEALTH GRANTS

There was a rearrangement of the National Health Grants in that the Venereal Disease Control Grant and the Laboratory and Radiological Services Grant were cancelled, and the services previously available under these grants were transferred to the General Public Health Grant. The Crippled Children's Grant and the Medical Rehabilitation Grant were combined into the Medical Rehabilitation and Crippled Children Grant. Also, professional training previously supplied under the Tuberculosis Control Grant, Laboratory and Radiological Services Grant, and the Child and Maternal Health Grant was transferred to the Professional Training Grant. This resulted in a redistribution of funds allocated to the grants affected by these changes.

Upon the recommendation of the Dominion Council of Health earlier in the year, a term-grant approach was made to selected research projects from well-established research centres, which are of a continuing nature and of uniform quality, and lending themselves to sustained levels of assistance over a period of approximately two years. Six research projects were recommended and accepted as term-grant projects, but it will still be necessary for reapplication to be made for continuation of these projects from year to year.

The total amount of funds available to British Columbia for 1960/61 was $4,867,542, being a decrease of $1,188,602 from that appropriated for 1959/60. This decrease was the result of considerably less funds being available in the revote of the Hospital Construction Grant and also in a general reduction of funds allocated to the majority of the grants for 1960/61. This excludes the Public Health Research Grant, which is administered in Ottawa.

Of the $4,233,522 approved for projects for the year ended March 31st, 1960, $3,928,461 was expended, or 64.8 per cent. The reasons for unexpended funds were largely due to the changing programme in the treatment of tuberculosis and to the initiation of increased facilities and treatment in the Mental Health Services Branch, which have not yet been finalized.

Professional Training Grant

The funds allocated to this grant were increased from $47,221 in 1959/60 to $157,699 in order to cover the transfer of professional training from other National Health Grants to this grant.

Short-term postgraduate training and university training were provided to personnel of hospitals, the University of British Columbia Faculty of Medicine, and metropolitan and Provincial health personnel. Assistance was also provided to sixteen hospital administrators and eight medical-record librarians who are participating in the extramural courses sponsored by the Canadian Hospital Association. Funds were provided to personnel of the Lower Vancouver Island Cerebral Palsy Association to attend a workship conducted in Vancouver, and also to staff members of the G. F. Strong Rehabilitation Centre to attend a course in prosthetics held at the University of California. Evening lectures were conducted for supervisory nursing staff of the Royal Columbian Hospital, St. Mary's Hospital, and the Surrey Memorial Hospital, sponsored by the Department of Extension and the School of Nursing of the University of British Columbia and the Royal Columbian Hospital, with National Health Grant assistance being provided.

Hospital Construction Grant

The Hospital Construction Grant for this year was fully committed by the end of December. Construction of community health centres utilized 4.5 per cent of the grant; the remainder, $1,650,572.86, was for general hospitals.

Mental Health Grant

There was a substantial increase in the Mental Health Grant allocation this year, the amount available totalling $790,742.

Most projects are submitted by the Mental Health Services Branch, and, as in previous years, the greater portion of the grant is used to provide staff and technical equipment for the mental-health institutions operated by the Province.

The Children's Foundation, which operates the Esther Irwin Home for Emotionally Disturbed Children, was assisted by a project providing a portion of the salary for the executive director. A new project to assist the Department of Psychiatry at the University of British Columbia was approved. This grant provides funds for the payment of tutorial supervision of graduate students studying for the specialty examinations in psychiatry. The grant also will assist in the purchase of basic equipment, including office furniture and library supplies.

Once again there has been an increase in the number of bursaries provided for professional training of mental-health personnel. There are now twelve psychi-

atrists, one internist, ten social workers, five registered nurses, and two clinical psychologists engaged in full-time graduate study. Most of these students are enrolled at the University of British Columbia.

The psychiatric services of the Vancouver General Hospital continued to receive support, as did the mental-hygiene programme of the Metropolitan Health Committee of Greater Vancouver and the training course for senior school counsellors sponsored by the Vancouver School Board.

Projects to assist the research programmes in the Departments of Neurological Research and Pharmacology of the University of British Columbia were continued, with some increase in the funds provided for this work.

Tuberculosis Control Grant

Funds allocated to this grant were decreased by $69,549, due mainly to the changing concepts in the tuberculosis-control programme.

The majority of the tuberculosis services are provided by the Province, and the largest portion of the grant is used by the Division of Tuberculosis Control of the Health Branch.

Continued assistance was supplied for equipment for health units and general hospitals, vocational training for students, payment for special out-patient investigations in general hospitals, and to antimicrobial therapy. In addition, assistance was given to the Metropoltan Health Committee of Greater Vancouver and to the Princess Margaret Children's Village toward personnel in the tuberculosis-control treatment programme.

Details of the activities of the Division of Tuberculosis Control are reported in a later section of this Health Branch Report.

Public Health Research Grant

Three research studies were conducted by departments of the Faculty of Medicine, University of British Columbia. Two of them were one-year projects, and were completed, these being: adrenal steroids and immune reactions in pregnancy, and drug-induced influences on the activity of enzymes involved in energy utilization on contractile function in cardiac tissues. The third study concerns pedestrian traffic accidents involving children in the City of Vancouver. Reports on the findings of all three surveys will be presented to the Department of National Health and Welfare.

Two new research projects were undertaken by the Health Centre for Children, one on auditory disorders in children of pre-school age and the other on a frequency compression speech system for use with deaf children. This latter project was conducted in conjunction with the University of British Columbia, Department of Electrical Engineering.

General Public Health Grant

The funds allocated to this grant were increased by $487,493 to include the services previously available from the Laboratory and Radiological Services Grant and the Venereal Disease Control Grant.

The general public health programme of the local health services staff continued to receive assistance. Details of this programme have been reported earlier in this Health Branch Report.

The rheumatic fever prophylaxis programme was expanded to include all the Provincial health units, together with the Metropolitan Health Committee of Greater

Vancouver. Patients up to the age of 18 years only have been accepted and have been taken on the programme at this time for a period of five years.

A third food-service institute for hospital cooks was held at Nanaimo, sponsored by the British Columbia Hospital Insurance Service and the Health Branch.

The Salk vaccine immunization programme was continued, with funds being supplied through the National Health Grants.

The speech and hearing programme of the Health Centre for Children continued to receive assistance toward the purchase of equipment, supplies, and personnel.

Research equipment and fittings were supplied for the new medical services buildings being constructed at the University of British Columbia.

At the request of the Minister of Health Services and Hospital Insurance, a project was formulated to study hospital utilization in the Lower Mainland under the direction of the Metropolitan Hospital Planning Council.

The venereal disease project is on a matching basis, with the total funds being paid to the Province. Expenditures by the Province are considerably in excess of the National Health Grants. The report on the Division of Venereal Disease Control appears in a later section of this Health Branch Report.

Continued assistance was provided to the Metropolitan Health Committee of Greater Vancouver toward personnel and purchase of dental equipment, and the Victoria-Esquimalt Board of Health also received support toward personnel.

With the further development of the glaucoma clinic servicecs at St. Joseph's Hospital, Victoria, assistance was increased to provide additional personnel and equipment.

The student internship programme, whereby medical students are assigned to health units and divisions within the Health Branch, has now been in operation for seven years and has proven to be a most successful project.

Laboratory Services

The work load of the four regional laboratories serving hospitals outside the urban centres continued to increase; in fact, the volume increased to such an extent in two of these regions that the Laboratory Advisory Council was called upon to make recommendations to either curtail the work or give assistance to the pathologist. Studies were conducted in both these areas and advice was given. As other hospitals in the Province had asked for the services of a pathologist, this Council proposed that these should be investigated before enlarging the existing programmes. Accordingly, a survey was made relative to pathological services for the Central and Upper Vancouver Island areas and a Pathological Committee was formed to investigate this development.

The laboratories in the urban centres were well staffed with technicians, due in part to the training-school at the University of British Columbia, Medical School Building, and the Vancouver General Hospital, which graduated twenty-five technicians this past year. The outlying districts still have difficulty in attracting technicians. Surveys indicated that there were several small hospitals where the amount and scope of work did not warrant a full-time laboratory technician even if available, and basic laboratory procedures have been attempted by unqualified personnel. As this is an inevitable situation, it has been proposed that a short course be planned to assist these individuals.

The Laboratory Advisory Council had a very active year, and two new subcommittees were formed. The Hospital Construction Division of the British Columbia Hospital Insurance Service asked for assistance in planning laboratories for new hospitals of various sizes, and a sub-committee was formed to make a study and

eventual recommendations. The second new sub-committee commenced a study of laboratory standards for hospitals of various sizes and according to the type of technical personnel available, and have planned to make recommendations. The Technical Sub-committee of the Laboratory Advisory Council held several meetings to appraise applications for grants on laboratory equipment.

A postgraduate course for laboratory technicians was given in Kamloops and organized by the pathologist at the Royal Inland Hospital. This event, the third of its kind, was attended by thirty-seven technicians from all parts of the Province, and because of the success and benefits derived it has been planned to make this an annual event.

The technical supervisor of clinical laboratory services acted as secretary to the Laboratory Advisory Council and its sub-committees, and accumulated data necessary for the various studies. Assistance was given to the arranging and implementation of the postgraduate course in Kamloops and also with various problems posed by administrators and technicians, particularly those in the smaller hospitals.

Radiological Services

In 1955 the Radiological Advisory Council was established to serve in an advisory capacity to the Deputy Minister of Health on matters affecting the development of radiological services in the Province. The Council has representation from the British Columbia Hospital Insurance Services, the Canadian Medical Association (British Columbia Division), the Faculty of Medicine of the University of British Columbia, the British Columbia Hospitals Association, and this Health Branch. The Technical Adviser, Radiological Services, a Health Branch employee, serves as Council secretary.

The Council's Technical Training Committee has again completed arrangements for two refresher courses for X-ray technicians, one on an elementary and one on an advanced level. They will be conducted during February, 1961. The Committee's study of the question of a two-year training course for technicians is nearing completion; the main aspect being considered is whether more emphasis should be placed on theoretical training.

The Radiation Committee has continued its study of radiation problems in the Province. These problems are becoming more acute as a result of the increasing use of radioisotopes in medicine, industry, and research, and the use of radioactive elements in items being sold through retail outlets.

The Technical Sub-committee, which reviews requests from hospitals for radiological equipment, approved fifty applications for such equipment, with a total value of about $250,000.

The technical adviser visited fifty hospitals in the Province during the year, and in most cases conducted radiation surveys. A considerable number of potentially dangerous electrical and mechanical deficiencies were disclosed, of which the hospitals were not aware. In all cases the hospitals should be able to correct them. Also, as a result of these visits, an expanded training programme for X-ray technicians is under consideration, and a programme of periodic visits has been instituted to assist hospital administrators and technical staff in their technical planning and procedures. Where the services of a radiologist were not available, these problems tended to be more acute, and this aspect of the matter is also being studied by the Council.

The Director, Division of Occupational Health Services and the Technical Adviser addressed conventions of the Chiropractors' Association of British Colum-

bia and the British Columbia Veterinary Association, at the request of these organizations. They spoke on radiation control and inspection.

The Health Branch continues to work with the Radiation Division, Department of National Health and Welfare, in its radioisotope inspection programme in this Province.

Cancer Control Grant

The operations of the British Columbia Cancer Foundation, which are financed jointly by this grant and matching Provincial funds, are outlined earlier in this report in the section on voluntary health agencies.

The cytology laboratory, located at the British Columbia Cancer Institute and under the direction of the Director, Department of Pathology, Vancouver General Hospital, enlarged its facilities in order to meet the ever-increasing cytology examinations requested by the physicians in this Province. Additional personnel and equipment were provided by the National Health Grants.

There were 65,000 examinations during 1959/60, compared with 13,656 in 1954/55. The major aspect of the work continues to be the detection of early carcinoma of the cervix.

A further supply of radium was purchased for the Victoria Cancer Clinic, together with additional equipment for its cancer programme. Also, equipment was purchased for the British Columbia Cancer Institute in order to further reduce radiation exposure to patients and X-ray film costs.

The programme of training radiotherapy technicians at the British Columbia Cancer Institute has continued with assistance from the Federal-Provincial programme and the Canadian Cancer Society (British Columbia and Yukon Division).

Medical Rehabilitation and Crippled Children's Grant

This grant is on a matching basis, with $236,982 being allocated from Federal funds for the fiscal year 1960/61.

The G. F. Strong Rehabilitation Centre and the Cerebral Palsy Association of British Columbia received continued support toward staff.

The Health Branch operates a registry for handicapped children and adults and a rehabilitation service for adults, receiving assistance from the National Health Grants. The report on these services appears in a later section of this Health Branch Report.

Child and Maternal Health Grant

Equipment was purchased for the child and maternal health programme in the Provincial health units in connection with classes for expectant parents. Continued provision was made toward partial payment of personnel and purchase of supplies for the expanding services of the Health Centre for Children.

The British Columbia Co-ordinating Council for Child Care continues to function in reviewing facilities and closer integration of children's hospitals in the Province. The operational costs are borne equally by a National Health Grant and by the British Columbia Foundation for Child Care, Poliomyelitis and Rehabilitation.

The service being given by the Department of Obstetrics and Gynæcology of the University of British Columbia on maternal mortality, maternal morbidity, and certain aspects of fœtal wastage in British Columbia was broadened to include a similar service for perinatal mortality.

The University of British Columbia child health programme continues to expand its services for the children of students. Provision was made toward per-

sonnel, supplies, equipment, and local travel for the public health nurse and social worker.

Two new research projects were instigated by the Health Centre for Children research department. One study is to investigate the metabolic disturbances in children with mental retardation and nervous disorders, and the second project is related to cytochemical studies on the alkaline phosphatase content of leukocytes of infants and children.

REPORT OF THE DIVISION OF PUBLIC HEALTH NURSING

MONICA M. FRITH, DIRECTOR

The Division of Public Health Nursing is part of the Bureau of Local Health Services, which provides public health nursing service to all areas of British Columbia, other than the districts of Greater Vancouver and Greater Victoria. In its administrative role the Division maintains a high standard of public health nursing performance on a local level, through the recruitment, placement, transfer, and training of public health nurses. In its consultative capacity it makes available technical help and guidance to assist public health nurses to provide public health nursing service in an efficient and effective manner.

To co-ordinate health facilities within the Province, the Division works closely with other official health agencies, such as the Vancouver Metropolitan Health Committee, Victoria-Esquimalt Health Department, Oak Bay Health Department, Indian Health Services, as well as voluntary agencies, such as the Victorian Order of Nurses and the Red Cross Nursing Service. Thus it is possible to co-ordinate the use of health facilities and resources to avoid overlapping and duplication of public health nursing services.

During 1960 the public health nursing service made great progress as it was possible to add twenty-six public health nurses to the field staff. There are now 217 full-time and ten part-time public health nurses employed in Local Health Services. Most of the additions were casual appointments made under provisions of the National Health Grants or the special fund for home nursing care. In addition, there are a Director, two public health nursing consultants, and an occupational health nurse in the Division, making a total of 221 full-time public health nurses.

PUBLIC HEALTH NURSING ADMINISTRATION AND CONSULTATION

Each year the Division undertakes certain studies to evaluate the services being provided by the public health nurses on a local level. Among these studies is the case-load analysis made of each public health nursing district to determine the work load and the progress being made. From a review of the case loads, it is possible to determine the need for revision in the area served by each public health nurse. An analysis of the local health problems in relation to the population and area served may indicate a need for additional nursing assistance. Areas with demonstrable population growth had fourteen additional public health nurses assigned to them this year. The following health units had public health nurses added: Central Vancouver Island Health Unit at Port Alberni, Skeena Health Unit at Prince Rupert, Peace River Health Unit at Dawson Creek and Fort St. John, South Central Health Unit at Kamloops, East Kootenay Health Unit at Cranbrook, Cariboo Health Unit at Prince George, Simon Fraser Health Unit at Coquitlam, Upper Fraser Health Unit at Abbotsford, Upper Island Health Unit at Campbell River, and Boundary Health Unit at Ladner, Langley, Cloverdale, and North Surrey. Part-time nursing assistance was made available to the East Kootenay Health Unit at Fernie and to the Howe Sound Public Health Nursing Service at Pemberton. By the end of the year it was possible to have an average ratio of one public health nurse to about 4,800 population for the basic service. This is closer to a desirable ratio of public health nurses to rural population than has been possible for some time. Health units providing home nursing-care service along with the basic programme had an average ratio of one public health nurse to 3,400 general popula-

tion. This was made possible by the assignment of twelve nurses to the following health units which provide the organized home nursing-care service: Central Vancouver Island at Port Alberni, two nurses at Duncan for Duncan and Ladysmith; Saanich and South Vancouver Island Health Unit at Sidney, Sooke, and Saanich; Cariboo Health Unit at Quesnel; East Kootenay Health Unit at Kimberley; South Okanagan Health Unit at Kelowna; North Fraser Health Unit at Haney; Selkirk Health Unit at Nelson; and South Central Health Unit at Kamloops.

A time study is done annually by each public health nurse to determine how much time is being spent on various activities. This provides information to determine the cost of the various services provided by the public health nurses. It also points out trends in the use of time which may require adjustment. As a result of this study, it has been possible to show that public health nurses were spending time on non-professional activities, such as cleaning of syringes and needles and certain clerical duties which could be done more economically by a less highly trained employee. Public health nurses were spending 3.1 per cent of their time on preparation of equipment and 3.4 per cent of their time on non-professional clerical work. It was possible to increase health unit aide and clerical time in certain health units and thus free public health nurses for professional nursing duties.

A study was made of the results of teacher-nurse conferences, which were designed to promote more efficient school health services. The results were gratifying on a Provincial basis as all health units showed an improvement over the last two years. During 1960 over 80 per cent of the referrals to the public health nurse for follow-up were completed in the elementary schools. There was less uniformity in the conferences in the junior and senior high schools, where productive conferences often were held with high-school counsellors instead of the classroom teacher and also individual referrals were received from teachers. The basic essentials in this programme are being drafted into a policy proposal for inclusion in the Policy Manual.

These studies, coupled with the monthly reports received from each public health nurse and information garnered through field visits of public health nursing consultants attached to the Division, serve to provide evaluation of the field service and permit opportunity for supervisory guidance of the nursing services. The public health nursing consultants plan to visit the health units and nursing districts twice a year to proffer guidance and assistance to the local staff.

To provide for the continuity and expansion of service, a considerable number of changes were required to make available public health nurses for the various positions in local health service. Eighty appointments were made, while there were twenty-four transfers. An additional thirteen nurses returned from educational leave of absence and were placed in areas requiring public health nursing staff. There were forty-eight resignations, of which twenty-seven were for family reasons, four to travel, ten to accept other positions, while eight nurses resigned to take further education. In addition, there was one death. This year the Health Branch continued to have a high proportion of qualified public health nurses, with 88.7 per cent of the nurses having either a diploma or university degree in public health nursing. The nurses employed without qualifications as public health nurses plan to obtain the required qualification following a short period of experience in the field.

Certain other activities are carried out by the public health nursing consultants to encourage efficiency in nursing procedures and services by the nursing staff, including the provision of literature, technical information, and equipment. The Policy Manual has continued to be a useful tool for the public health staff, and the public health nursing consultants have contributed many new sections and revised

others this year. With the assistance of the Nursing Care Policy Committee, a home nursing-care procedure manual was completed which can be carried by the public health nurse in her nursing bag as she goes about her daily work. The Public Health Nursing Records Committee met less frequently this year as the record system has become fairly well stabilized and fewer changes are required. The public health nursing consultant in Victoria is preparing a revision of the Records Manual, which will be available early in 1961. The consultant in Vancouver continues to act as a public health nursing adviser and maintains liaison with voluntary and official agencies.

Due to the need for special emphasis on rehabilitation, the public health nursing consultant in Vancouver was assigned the task of stimulating interest and developing more emphasis on this phase of the public health programme. She is working closely with rehabilitation specialists to help work up a programme which can be built to suit the situation in this Province. Some progress has been made in extending and improving loan cupboards in areas providing home nursing-care service. In addition, a closer working relationship is being developed with the Victorian Order of Nurses so that rehabilitation nursing will be extended in areas served by both agencies.

Assistance was given the Provincial Civil Defence Co-ordinator in planning and conducting courses of training in emergency health services for nurses in British Columbia. This included participation in a one-week programme designated for Directors of Nursing of hospitals throughout the Province. In addition, recommendations were made for the selection of nursing candidates for special courses for nurses given at the Civil Defence College at Arnprior, Ont.

The public health nurse in the Occupational Health Service continued to provide a valuable service for the employees in the Victoria area. In addition, she has assisted with plans for the extension of the service into the Vancouver area. Arrangements have now been concluded so that an experienced public health nurse will be available in the new year to inaugurate the service.

TRAINING PROGRAMMES

As public health nursing is becoming increasingly complex, it is important that the public health nursing staff have a high degree of training. In addition to registration as a nurse, the public health nurse must qualify by securing a diploma or degree in nursing, majoring in public health at a recognized university. As it has not been possible to recruit a sufficient number of fully qualified public health nurses, it has been necessary to continue with the public health nursing training programme for selected candidates. A limited number of registered nurses are taken on staff on the understanding that they will be completing the university requirement at an early date. National Health Grant bursaries are made available to the nurses who have demonstrated suitability for the public health nursing field, following a satisfactory period of service on the staff. During the year eleven nurses returned to local health service following completion of the public health course at university and an additional eight are on educational leave of absence to complete similar training. It is interesting to note that ninety-one nurses have received National Health Grant bursaries since they were first inaugurated under this plan in 1948, and that 48 per cent are still on staff. Nurses accepting financial assistance are asked to serve for a period of two years after completion of the programme. Over 80 per cent of the candidates served three years or over after completing the university programme. As public health nursing supervision involves preparation beyond that required for staff public health nurses, it is our plan to have

all supervisors and senior nurses complete courses designed to give special training in public health nursing supervision and administration. Two public health nursing supervisors returned following a year's programme in public health nursing administration and supervision at McGill University, while three public health nursing supervisors are away this year, two at the University of Toronto and the third enrolled in the Public Health School at Ann Arbor, Mich.

The provision of field experience for graduate nurse students is an important contribution toward the training of nurses. During the year forty-three students from the University of British Columbia were placed in health units for periods of time ranging from two weeks to one month, while one student from McGill School of Nursing was placed for public health nursing supervisory experience for a month.

Undergraduate nurses in all schools of nursing in British Columbia now observe for periods of time ranging from four days to two weeks in local health services. Students from the Vancouver General Hospital have a period of observation with the Metropolitan Health Service. Eighty-five student-nurses had field observation in Provincial health units adjacent to their schools of nursing, which included the Saanich and South Vancouver Island Health Unit for Victoria schools of nursing, Boundary and Simon Fraser Health Units for the Royal Columbian School of Nursing in New Westminster, and the South Central Health Unit for the Royal Inland School of Nursing at Kamloops. This year a new plan was put into effect, whereby student-nurses from St. Paul's Hospital School of Nursing had field experience following their annual vacation in the health units of their residence. As a result, fifteen nurses had a week's experience in health units which had not been providing this kind of student experience before.

LOCAL PUBLIC HEALTH NURSING SERVICE

The public health nursing programme is developed on a local level to meet the health needs of the community following an accepted standard of service. At the end of the year there were 217 public health nurses serving full time and ten part time (equal to five full time) in the Health Branch. The increase of twenty-six over last year consisted mostly of casual appointments made under the provisions of National Health Grants or the special funds for home nursing care. In addition, other official agencies employed a total of 207 public health nurses to provide service in other parts of the Province. This included 159½ with the Metropolitan Health Committee serving the Greater Vancouver area, 12½ in the Victoria-Esquimalt Health Department, three in the Oak Bay Public Health Department, and eight in the City of New Westminster, which forms part of the Simon Fraser Health Unit. The Indian Health Services have twenty-four nurses who provide public health nursing service on reservations not served by Provincial health units or the Metropolitan Health Committee. In addition to the above, a voluntary agency, the Victoria Order of Nurses, supplements the public health nursing programme in the larger cities and certain large rural municipalities through the provision of home care nursing and other selected services. The Victorian Order of Nurses employed sixty-one public health nurses in its various branches in British Columbia. At the end of the year a total equivalent to 496 full-time public health nurses were employed in public health nursing positions throughout the Province. Public health nurses in all services work closely with nurses in hospitals and with occupational health nurses to provide continuity of nursing service in local districts.

The public health nursing programme throughout the Province is provided as a generalized service designed to meet the health needs of all members of the family. Methods vary in the conduct of the service, although every effort is made for all

public health organizations to follow policies which are worked out on a Provincial basis so that a similar standard is attained throughout British Columbia.

Certain health programmes are directed toward specific age-groups where special health needs are known to exist. The public health nursing service includes health instruction for expectant parents through individual instruction and group classes. A total of sixty-two centres throughout British Columbia provided this type of programme. It is estimated that 12.2 per cent of mothers in relation to babies born attended classes this year. All official agencies provide this type of programme, and the Victorian Order of Nurses participates in the programme in the Greater Vancouver and Victoria areas. At child health conferences and in home visits, parents receive anticipatory guidance on the physical and emotional development of the child in order to assist each child to reach its health potential. Assistance is given parents in providing resources for the correction of defects and medical care as indicated. Specific services such as immunization against preventable diseases, including smallpox, diphtheria, poliomyelitis, typhoid fever, tetanus, and whooping-cough, are provided at child health conferences, schools, and special clinics. Regular child health conferences were held at 985 centres in the Province last year. It is estimated that in the Provincial health unit areas 86 per cent of all infants received public health nursing service either through attendance at child health conferences or in home visits. A continuous health supervisory programme is carried on in the schools to assist in the promotion of health among the school-age children. This year the rheumatic fever prophylaxis programme was extended to all rheumatic fever patients up to 18 years of age throughout the Province, and public health nurses provided nursing supervision in the home. Follow-up on accidental poisonings is made by the public health nurses following receipt of reports from Poison Control Centres. An increased emphasis is being placed on mental-health problems, and a number of pilot studies are being conducted to determine the best results of follow-up of various community-sponsored mental-health programmes. Public health nurses are active in the referral and follow-up of selected patients. During the year the numbers of immunizations to adults increased, particularly for poliomyelitis. Local Kinsmen's Clubs assisted with organization and advertising in some instances, and as a result about 50,000 adults completed the series this year.

During the year there was an acceleration in the establishment of organized home nursing-care programmes in the Provincial health units. Local communities can arrange for this service with their health unit by approval of an additional assessment of 10 cents *per capita*. Nursing care is then provided within the framework of the public health nursing service. The following new centres established this programme during the year in the health units listed: Central Vancouver Island Health Unit at Duncan, Ladysmith, Lake Cowichan, and Port Alberni; Saanich and South Vancouver Island Health Unit at Sidney, Sooke, and Langford; North Fraser Health Unit in Maple Ridge Municipality; South Central Health Unit at Kamloops; Cariboo Health Unit at Williams Lake and Quesnel; Skeena Health Unit at Prince Rupert; Selkirk Health Unit at Nelson; East Kootenay Health Unit at Kimberley; West Kootenay Health Unit at Greenwood. In all, twenty-six centres in British Columbia are now offering home nursing-care service. Early in the new year the service will commence in the Cariboo Health Unit at Vanderhoof and Prince George, in the West Kootenay Health Unit at Grand Forks and Castlegar, and in the Skeena Health Unit at Terrace, while other areas are making plans for organizing this service. It should be noted that the home nursing-care service is merely the beginning of a more extensive programme in home care. Certain communities such as

To the child health conference, the mother brings her older child as well as the new baby.

A home visit to the new mother is an important part of the maternal and child health programme.

Kelowna and Penticton in the South Okanagan Health Unit and Chilliwack in the Upper Fraser Valley Health Unit have developed excellent homemaker service, so that part-time housekeeping services are available in the home. This is an important adjunct to part-time home nursing service as professional care in the home cannot be effective if there is no one in the home to give the necessary care between the visits of the public health nurse. It is anticipated that as more facilities become available in each community, more persons can be cared for at home. During the year public health nurses made 14,261 visits to care for patients in the organized nursing-care programme.

The first complete statistical analysis was done this year by the Division of Vital Statistics and the results published in Special Report No. 46, " Nursing Care Programme Statistics, British Columbia, 1959." Some of the main points shown up in this study include the fact that the average time of a public health nurse's visit was twenty-nine minutes. This included sixteen minutes for treatment, ten minutes for travel, and three minutes for other service. The types of nursing care fitted into three categories: the largest was " injections," amounting to 69.6 per cent; " general care " amounted to 19.8 per cent; while the remaining 10 per cent included treatments such as colostomy irrigation, douche, dressings, treatment to wounds, exercises, etc. The time used by the public health nurse for general care averaged forty-eight minutes, while injections averaged twenty-three minutes. It is interesting to note that 79 per cent of the patients are over 60 years of age, and that they receive more visits per person than the younger age-groups. The largest number of visits, or 38 per cent, was made to persons with heart disease and diseases of the circulatory system, while the next largest number of visits, or 18 per cent, was made to individuals suffering with anæmia. The cost of a visit by a public health nurse was $1.81, or approximately $2 if certain administrative charges are added. This is considerably less than institutional care, and the over-all community costs in terms of hospitalization utilization can be readily visualized if visiting nurse care was unavailable. Although it can be shown that there is a financial saving in terms of hospital usage in acute, chronic, or other type of institution, one of the major values is the maintenance of the patient as a useful, happy member of society restored to active life among his family and his friends. In areas where there is no organized home nursing-care service, public health nurses have continued to provide limited home nursing care on a short-term and demonstration basis, as part of the regular public health nursing programme, and 7,286 nursing-care visits were rendered during the year. This is in addition to the 11,743 therapeutic injections of streptomycin given to tuberculosis patients, which reduces their infection, promotes their " cure," and permits them to forego lengthy sanatorium treatment, thus reducing tuberculosis treatment costs significantly.

STATISTICAL SUMMARY SHOWING VOLUME OF PUBLIC HEALTH NURSING SERVICES DURING 1960[1]

School service—	
Assistance with examinations by public health physicians	21,568
Services by nurse to students	121,452
Teacher-nurse conferences (classrooms)	6,686
Consultations—staff members	60,074
School meetings attended	614
Home and office visits	37,006
Meetings with parents	5,574
Telephone consultations	31,564
Infant—	
Child health conference attendance	69,293
Home visits	50,023
Phone consultations	12,776
Pre-school—	
Child health conference attendance	96,252
Home visits	34,158
Phone consultations	15,743
Prenatal—	
Expectant parents' classes—attendance	9,798
Expectant parents' exercise classes—attendance	7,209
Adult—Services rendered at home, and office and phone consultations	144,276
Tuberculosis—	
Home and office service	12,537
Streptomycin injections	11,743
Venereal disease—Treatment of cases and other follow-up visits	2,295
Nursing care—	
General programme	7,286
Special programme	14,261
Prophylactic injections for communicable disease	3,532
Total homes visited	89,219
Immunizations: Series completed for protection against—	
Pertussis	44,918
Diphtheria	76,080
Tetanus	78,497
Poliomyelitis	105,564
Typhoid	658
Smallpox	67,043
Total number of individual doses	398,588
Tuberculin tests	13,857

[1] This report concerns the services provided by the public health nurses under the jurisdiction of the Provincial Health Branch and does not include the services provided by the metropolitan health departments of Greater Vancouver, Victoria-Esquimalt, New Westminster, and Oak Bay.

REPORT OF THE DIVISION OF PUBLIC HEALTH ENGINEERING

R. BOWERING, DIRECTOR

The Division of Public Health Engineering is concerned with the specialized field in public health wherein engineering principles and techniques are employed in the practice of public health. The major fields of work of the Division will be discussed under separate headings.

WATER-SUPPLIES

Water-supply is one of the traditional fields of responsibility of public health engineers. The *Health Act* requires that all plans of new waterworks systems and alterations and extensions to existing systems be submitted to the Health Branch for approval. The Division is responsible for reviewing these plans. Careful study of these plans, together with inspections on the site in many cases, is carried out before approval is given. During the year there were sixty-two approvals or provisional approvals given in connection with waterworks construction. This was down from seventy-nine in 1959. The reason for this drop is probably the decline in the house-construction industry.

In addition to approval of plans, waterworks systems in the Province are visited from time to time for the purpose of checking on sanitary hazards and assisting generally in the improvement of waterworks systems.

Generally in British Columbia the water-supply sources are good, and expensive treatment of the water is not usually required. Most of the large water systems in British Columbia obtain water from relatively uninhabited mountain watersheds. Water from this type of terrain usually does not require sedimentation or filtration. Chlorination is usually the treatment used for the purpose of bringing the water within the standards for bacterial purity that are recognized throughout North America. Over 80 per cent of the population of the Province uses water protected by chlorination. One community in the Province, Fort Nelson, built a new water system during the year.

By the end of the year 1960 there were seven communities fluoridating the water, some using sodium silico fluoride and some using sodium fluoride. Reports are received regularly with respect to the amount of fluoride added to the water, the amount of water used, and reports on testing of the water for fluoride. Fluoridation plants are visited from time to time for the purpose of checking on their operations. In addition, a large number of regular water-supplies were tested again for fluoride content. Generally speaking, the fluoride content of the water-supplies of British Columbia is less than 0.3 p.p.m.

The local health units are responsible for the regular frequent sampling of the water from public water-supply systems. The Division of Laboratories performs the examination of the samples. The Division of Public Health Engineering offers consultative advice on the interpretation of the samples to the health units.

Each year the Division receives a number of inquiries concerning private water-supplies. These are referred to local health units. A considerable amount of advice is given by mail and occasionally by visits. Also, when visiting health units, public health engineers consult with the local health unit officials on various water-supply problems.

No known water-borne epidemics resulting from the use of public water-supplies were reported during the year. This fact is evidence of the care being taken by the various water authorities to provide a safe water-supply for the citizens. This record can only be maintained by constant vigilance on the part of the local health authorities and engineers of the Division. In order to assist further the efforts of the local water authorities to have better-trained people operating the waterworks systems of the Province, a short course was held at the University of British Columbia in September, 1960, attended by fifty-eight operators of small water systems. This short school was organized in co-operation with the American Water Works Association and the University of British Columbia. Engineers of the Division took a prominent part in organizing the course.

SEWAGE DISPOSAL

The problem of sewerage and sewage disposal is one that comes within the purview of the Division of Public Health Engineering. Using 1959 population estimates, there were in the Province approximately 840,000 people served by common sewerage systems. This is just over 53 per cent of the total population of the Province. This means that there are about 730,000 people who are not served by common sewers. Of those not served by common sewers, the unorganized territory and the Indian reserves account for about 300,000 people. This leaves about 400,000 living in municipalities who are not served by common sewers. Most of these people, however, live in large district municipalities, a number of which, although not thickly populated, will have to build extensive sewerage-works within the next few years as they change in character from rural to urban communities.

There were, at the end of 1959, ninety-three communities in British Columbia organized as cities, towns, and villages. Of these, thirty-three are cities, three are towns, and fifty-seven are villages. Of the thirty-three cities, eighteen have populations over 5,000. All of these cities are sewered or partly sewered. The remaining cities, towns, and villages all have populations below 5,000. Eighteen of the communities have populations between 2,000 and 5,000. Of these, thirteen are sewered or partly sewered. There are fifty-seven of these communities below 2,000. Of these, eighteen are partly sewered. Actually the figures for villages, towns, and cities show that if an organized commmunity has a population in excess of 1,000 and a population density of five persons or more per acre of taxable land, then that community is at least partly sewered.

The Division has the responsibility of reviewing plans for extensions, alterations, and construction of sewerage systems. During the year sixty-nine approvals were given in connection with sewerage-works. This compares with sixty-four in 1959.

Study of the plans for approval includes the study of profiles and plans of appurtenances in order to see that a good standard of sewerage-work is constructed. Also, the study includes the study of treatment-works, if any, and studies of the receiving body of water in order to determine the degree of treatment required. There were some important by-laws for sewerage construction passed in 1960. Two of the notable ones include the largest district municipalities in the Greater Vancouver area and the Greater Victoria area respectively—namely, Burnaby and Saanich. Among other highlights this year were the construction by the City of Penticton of a fine, new activated sludge treatment plant; the construction of a sewage treatment plant to serve the Brighouse area of Richmond; the construction of a new sewerage system for Princeton; the construction of a new sewerage system for Fort Nelson; and the beginning of construction of a new sewerage system

to serve the City of Chilliwack and the surrounding areas of the District of Chilliwhack. The extensive work being done by the Greater Vancouver Sewerage and Drainage District should be mentioned. This includes the construction of the sewage treatment plant near the Lions Gate Bridge to serve West Vancouver; the work on the Highbury interceptor tunnel, which will eventually convey sewage from the north side of Vancouver to the proposed Iona Island treatment plant; and the outfall and interceptor in Port Moody.

There are now eleven installations of waste stabilization ponds in British Columbia treating municipal sewage. They serve a combined population of about 28,000 people and provide a reasonably good sewage-treatment service at a relatively low cost. Generally, their use is restricted to smaller populations, although, if land were available, even fairly large populations could be served by waste stabilization ponds.

STREAM POLLUTION

The general problem of stream pollution control is one of the major items dealt with by the Division of Public Health Engineering. Stream pollution is caused by the discharge of sewage and industrial wastes into surface-water. These discharges may have quite diverse effects on the receiving body of water because of the extreme variations in the type and strength of the waste and the quality and volume of the receiving water. The net result of such discharges, however, may make the water less desirable and less useful.

Another aspect of stream pollution control is that, as the population of the Province increases and as the industrialization of the Province increases, it will not be possible to maintain the quality of the water in the streams to equal the quality that existed before industrialization increased. The reason for this is that rivers have to be used for the carrying-away of sewage effluent and industrial waste effluent. In the case of industrial wastes, the cost of treatment has to be paid for from the sale of the product. The aim in stream pollution control should be to so control industrial and sewage effluents that their total effect on the quality of the water in the river will not seriously harm beneficial down-stream uses, such as for water-supply, agriculture, recreation, and fish-life.

Toward the end of the year a pulp-mill was placed in operation on the Columbia River. This was the first instance of a pulp-mill being established in British Columbia on an Interior stream. Great care in planning was exercised by the designers and owners to prevent undue pollution from this plant. Some difficulty was experienced because of starting difficulties allowing fibre to enter the river, but it is expected that this matter will be cleaned up when the plant comes under full operation.

In addition to the Health Branch, other departments of Government have had legislation for the control of certain types of pollution. This type of control has not been sufficient to prevent all types of pollution, and for this reason the Pollution-control Board was established to take charge of the pollution problem in the Lower Fraser River basin. It is possible that this Board may extend its control to other areas of the Province in 1961.

THE POLLUTION-CONTROL BOARD

The Pollution-control Board, which was set up late in 1956 to control the discharge of waste into the Lower Fraser basin, requires a considerable amount of work by the Division of Public Health Engineering. The administration of the Act is the responsibility of the Minister of Municipal Affairs. The Pollution-control

Board consists of three Civil Servants, one former Civil Servant, and three members from the Greater Vancouver area. Under the Act, responsibility for technical advice is laid upon the Health Branch. The Director of Public Health Engineering acts as secretary and executive engineer of the Pollution-control Board and is technical adviser to the Board.

The area over which the Pollution-control Board has jurisdiction is the Lower Fraser Valley below Hope, together with the contiguous salt-water areas, including Boundary Bay, Roberts Bank, Sturgeon Bank, Burrard Inlet, and Howe Sound.

During the year only five permits for discharge of wastes were issued. This compares with nine the year before. All permits have been made valid for only five years, during which time it is believed that adequate studies of the capacity of the river to receive pollution, together with studies of existing discharge to the river, would be made.

A considerable survey of the area under the jurisdiction of the Pollution-control Board was made during the year 1960. This report revealed that there were 221 individual outfalls into the area served by the Board. Some of these conveyed industrial wastes and some domestic sewage. The outfalls that have been built since the inception of the Pollution-control Board have been constructed with very restrictive conditions as to the quality of the water. The building of outfalls under permit in the future will tend to stop any rapid increase in pollution. The further treatment of some of the effluent in existing outfalls will tend to lessen pollution in the future. The programme of the Greater Vancouver Sewerage and Drainage District, when fully carried out, will place considerably more than half of the presently discharged untreated sewage under treatment.

A large number of samples from Burrard Inlet and the Fraser River were taken through the co-operation of local health units. This work will continue. It is expected that the work of the Pollution-control Board will occupy a considerable amount of time of the Division of Public Health Engineering for years to come.

SHELL-FISH SANITATION

The Division of Public Health Engineering has the responsibility of enforcing the shell-fish regulations. Inspection of shucking plants and handling procedures now comes under the jurisdiction of local health units. There are six health units that have one or more shucking plants within their area. Certificates of compliance are issued to owners of shucking plants that comply with the regulations.

Studies are also made of the shellfish-growing areas as all applications to lease areas for shellfish-culture purposes have to be approved by the Health Branch. Practically all the oysters produced commercially in British Columbia are grown on leased ground.

There is complete co-operation between the Provincial Health Branch and the Department of National Health and Welfare with respect to the shell-fish industry. The Department of National Health and Welfare has the responsibility for approving shell-fish operations where the product is sold outside of the Province of British Columbia. There is also good co-operation between the Health Branch and the Provincial and Federal Fisheries Departments. With respect to paralytic shell-fish poisoning, a continuing sampling programme was carried on. Unfortunately, the number of samples gathered was not as great as was desirable. Some paid samplers were employed to pick up samples in distant parts of the Province, but the number of samples resulting was disappointing. It is possible that the fee that was paid was too low. However, with this, it was determined that the toxicity that has existed in the Gulf of Georgia area since 1957 is gradually dying out. It was pos-

sible to reduce still further the area that remained closed for the taking of shell-fish for commercial purposes. Also, it was possible to place only one species of clam on the closed list. The area now closed for the taking of butter-clams is generally the area north of Denman Island and Texada Island in the Gulf of Georgia and south of a line drawn across Johnstone Strait at Blenkinsop Bay. This means that the southern end of the Gulf of Georgia is all open now.

GENERAL

The Division of Public Health Engineering provides a consultative service to other divisions of the Health Branch and to the local health units on any matters dealing with engineering. This entails a considerable amount of work and travel. During visits to the health units various problems requiring engineering for their solution are examined in the field.

The position of Chairman of the British Columbia Examining Board for Sanitary Inspectors was again filled by the Director of the Division. Five persons received certificates in sanitary inspection during the year.

The Director served also as a member of the Advisory Committee on Health, which is a sub-committee of the Associate Committee of the National Building Code of the National Research Council of Canada. Members of the Division gave lectures on civil defence for several civil defence courses during the year.

A considerable amount of the work of the Division depends upon co-operation with the Division of Laboratories, which examines all specimens submitted for examination. The Division wishes to record its appreciation to the Division of Laboratories for its co-operation whenever requested. It is expected, that as industrialization increases, the work of the Division in stream pollution control will increase tremendously.

REPORT OF THE DIVISION OF PREVENTIVE DENTISTRY

F. McCombie, Director

The decreasing availability of dental practitioners to the people of British Columbia is becoming more serious. The numbers of dentists each year commencing practice in this Province is not keeping pace with the rate at which the population is increasing. Since 1952 the ratio of dentists to population in British Columbia has worsened. By the standards of 1951, there is to-day a shortage of 100 dentists. If the present trend continues, this Province will be short of 300 dentists in the next ten years.

Not only is there an urgent need to train dentists in British Columbia, but it is also imperative to decrease the need for dental treatment. One of the diseases of the oral cavity—namely, dental caries—is to-day very largely preventable. The severity and sequelæ of other dental diseases (for example, pyorrhea, oral cancer) and abnormalities (for example, crooked teeth) can be minimized to-day by early and regular treatment.

PREVENTIVE DENTAL SERVICES

The metropolitan areas of Greater Vancouver and Greater Victoria provide autonomous dental-health services. Grants-in-aid to these programmes are made yearly by the Government of British Columbia, using both Provincial funds and National Health Grants. Some of the clinical aspects of these programmes are demonstrated in Table I below.

Table I.—Full-time Preventive Dental Treatment Services in British Columbia, Shown by Local Health Agency, School-years 1954/55 to 1959/60

School-year	Number of School Districts Included	Pre-school Children Dentally Completed	Grade I Pupils					Total of Children in Other Grades Dentally Completed
			School Enrolment	Dentally Completed by School Clinics (1)	Requiring No Treatment when Examined (2)	Attending Family Dentist (3)	Total of Columns (1), (2), and (3)	
1954/55	19	1,853	13,506	4,213	3,945	1,749	9,907	(1)
1955/56	15	1,815	13,423	3,878	4,710	3,202	11,790	1,566
1956/57	14	2,022	13,761	3,726	5,106	3,271	12,103	318
1957/58	9	2,213	13,715	3,204	5,587	3,208	11,999	481
1958/59	8	2,538	14,091	3,617	5,952	3,508	13,077	178
1959/60—								
Greater Vancouver Metropolitan Health Committee	5	2,753	12,077	3,575	5,307	2,823	11,705	146
Greater Victoria School District	1	17	2,057	56	1,099	687	1,842	2
Totals	6	2,770	14,134	3,631	6,406	3,510	13,547	148

[1] Information not available.

A comparison of the above table with that appearing in the 1959 Annual Report shows that the programme of the Central Vancouver Island Health Unit is not this year included therein. The clinical services to this area have, however, continued and have, in fact, expanded but are now provided by resident general dental practitioners and are included within those services reported in Table II below.

It will also be noted that the total number of pre-school children benefiting by the above services continues to increase and now represents 42 per cent of the total. It is also commendable to the educational activities of these services to note that this past school-year no less than 45 per cent of the Grade I children examined in the classrooms did not appear to be in need of dental treatment. Furthermore, no less than 96 per cent of the total Grade I enrolment were either so classified or subsequently received treatment by their own family dentists (25 per cent) or by these school dental services (26 per cent).

The educational activities of these programmes include the counselling of the maximum possible number of parents at the chairside with their child. Approximately 8,000 parents thereby received such advice and assistance. As a further means of decreasing the incidence of dental caries, these services are currently planning to include, within the preventive treatment they provide, the topical application of stannous fluoride when requested by the parent.

In the rural health units of this Province there operated during the past school-year ninety-seven separately and locally sponsored community preventive dental programmes. The continued expansion of these programmes is demonstrated by the fact that last school-year they operated in sixty-seven of the seventy-three school districts constituting the areas served by the seventeen rural health units of this Province.

Table II.—Part-time Preventive Dental Treatment Services (Community Preventive Dental Clinics) in British Columbia, School-years 1955/56 to 1959/60

School-year	Number of Local Health Unit Areas in Which Clinics Operated	Number of School Districts in Which Clinics Operated	Number of Clinics Which Operated	Number of Dentists Participating	Pre-school Children Dentally Completed	Grade I School Enrolment of Clinic Areas	Grade I Pupils Dentally Completed	Total Completed, Pre-school, Grades I, II, and III
1955/56	14	37	59	74	1,753	7,888	3,260	6,444
1956/57	16	45	74	96	1,871	8,497	4,115	7,641
1957/58	17	53	80	114	2,277	11,214	4,999	8,793
1958/59	17	59	93	126	2,760	12,948	5,981	10,212
1959/60	17	67	97	134	2,797	13,403	6,079	10,130

Within these programmes 134 general dental practitioners provided their services on a part-time basis. These services were most warmly appreciated by the parents, the local community organizations, and by all public health personnel. The number of pre-school children benefiting by these programmes further increased and was 28 per cent of the total, whilst Grade I pupils represented a further 60 per cent of the total number of children receiving preventive treatment.

The preventive dental services of this Province, together with the efforts of the general dental practitioners, have now established a pattern of behaviour whereby the majority (approximately 60 per cent) of Grade I pupils of the entire Province receive dental treatment. However, on entering school the average amount of dental decay already experienced by these children has already affected at least six deciduous teeth and already more than one permanent tooth.

The costs of rehabilitating these children even at 6 years of age is to be deplored since the majority of the treatment then needed could have been prevented. Not only is the financial cost to be deplored, but also the expenditure of the dentists' time, which is steadily decreasing in availability to the people of this Province.

Therefore, during the past year the objectives of the community preventive dental programmes of this Province were redefined in the following terms:—

(1) To educate families in the prevention of dental disease and abnormalities, especially amongst children, commencing before birth, accented during infancy, and vigorously continued during school years.

(2) To educate families to seek early and regular dental treatment for their children, commencing at 2½ years of age, either as private patients of the practising dentists of the community or by being registered in the community preventive dental programme when this can be arranged.

(3) To ensure that all Grade I pupils are regularly receiving dental care and that all " stragglers " commence such treatment forthwith, either as private patients or by being registered in the community preventive dental programme, when the programme includes Grade I pupils.

(4) To encourage the regular dental care of all school-children, particularly pupils of Grades II and III as private patients, but only in exceptional circumstances will pupils of Grades II and III be included in community preventive dental programmes.

(5) To continue family education and that of all school pupils in the prevention of dental disease and the need for regular dental care.

(6) To establish and maintain the concept that the dental health of the children is a family and a community responsibility.

To encourage parents to establish sound dental health practices for their children at an early age, infant rosters are under preparation in the health unit offices. As a child reaches 3 years of age, a " reminder " will be mailed to the parents to advise them, if not already done, to take the child to their family dentist for counselling, examination, and necessary treatment. This procedure is already in effect in fourteen school districts.

In the community preventive dental programmes served by a resident general dental practitioner, time previously allocated to the treatment of pupils of Grades II and III will be required to be reallocated to pre-school children. Where there is an acute shortage of available time by the local dentists, and this is rapidly becoming a problem throughout the Province, several programmes previously confined to " Grade I pupils only " are now operating as " pre-school only " programmes.

During the past years many of the smaller and more remote communities have relied on this Division each year to arrange for them the services of a visiting dentist, primarily for their community preventive dental programme. Latterly such visits have in many instances been arranged in the form of a continuing schedule, thereby providing continuous employment to the dentist over a period of some months. During the past two years we have received from new dental graduates more applications for such assignments than vacancies existed. Therefore, commencing in the summer of 1961, it is planned to establish in this Province a " dental public health extern programme." It is planned each year to offer four such externships. These externs will not only ensure the continuance of the much-needed services to the smaller communities and thereby attain further clinical experience (especially in children's dentistry), but they will also be given practical experience in the many other dental public health activities of this Province. Throughout his nine to twelve months' assignment each extern will serve under the direction of a regional dental consultant of this Division and thereby serve as his clinical assistant.

To improve the quality and quantity of the services of such dentists, who utilize a set of the transportable dental equipment of this Division when visiting the smaller communities, a pilot transportable high-speed dental air-rotor unit has this past

year been under trial. Such has been the success of this unit that four more are now on order. When these are received each dental public health extern will be so equipped.

RESEARCH

During the period 1958–60 dental-health surveys have been carried out throughout the entire Province. Approximately 9,750 children have been examined, and these were randomly selected from virtually the total school population of British Columbia, of more than 275,000. Standard statistical procedures were utilized to attain this sample, and the results may be considered with a high degree of confidence as representative of the total. One hundred and fifty-two dentists of this Province participated in these surveys. Their co-operation has been warmly appreciated.

Children of Greater Victoria were shown to have benefited by a significantly greater amount of dental treatment than provided in any other region of the Province. They had also experienced rather less dental decay. The amount of dental treatment received by children of the northern health units and those of the Kootenays was shown to be somewhat less than in other areas of the Province. The ratio of dentists to population is best in the Greater Victoria area and least favourable in the north and the Kootenays.

The better dental-health status of the children of Victoria is attributed not only to the greater availability of dental practitioners, but also to their co-operation in providing treatment to the children. The co-operation between the Board of Trustees of this school district and the Victoria and District Dental Society, whereby children may obtain dental treatment during school-hours, is also considered to be a significant factor toward this result. Acknowledgment is also made to the dental-health educational activities carried out over the past years by the teachers of this school district and by the Director of School Dental Services, Dr. H. Clarke, and his staff.

Nevertheless, the dental-health status of the children of this Province, as a whole, needs improvement. By these surveys it has been shown that only 6 per cent of all the children had no dental defects when examined and no less than 65 per cent suffered from some form of malocclusion (crooked teeth), with less than 1 per cent under treatment. More than 40 per cent showed evidence of poor oral hygiene and greater than 10 per cent were suffering from some form of disease of the gingivæ (for example, gingivitis). At 5 years of age 85 per cent have already experienced dental decay, with an average of six teeth already involved. At 15 years of age less than one-half of 1 per cent had no evidence of having experienced dental decay, with an average of more than twelve of their twenty-eight permanent teeth involved.

Results of the 1958–60 dental-health surveys of British Columbia are being published in co-operation with the Division of Vital Statistics as Special Report No. 52.

These surveys have demonstrated that the collection of such data is not only possible but practicable, and that the evidence thereby resulting is of fundamental importance. A methodology closely similar to that pioneered by this Province has been adopted by the Canadian Dental Association and recommended for national implementation.

In British Columbia the original methodology has been slightly amended in view of experience gained in the past years and also to conform as closely as possible to that of the Canadian Dental Association. However, care has been taken

to maintain at a minimum any loss of comparability between the results of future surveys and of those providing the base-line data for the period 1958–60. The revised methodology has also attempted to measure, as a subsection of all children suffering from any type of malocclusion, those so severely affected as might be expected to cause speech difficulty, loss of masticatory efficiency, or likely psychological disturbance. Plans now anticipate that surveys will again be conducted throughout the Province during the years 1961 to 1965. The data from these future surveys, when compared with that of the 1958–60 series, will reveal to what extent the dental-health status of the children has been improved by the preventive dental services of this Province.

A programme to encourage certain phases of preventive dentistry has been undertaken with the British Columbia Dental Association and the practising dentists.

This past year, in co-operation with the Registry for Handicapped Children and Adults, a survey of approximately 100 children born with a cleft palate and (or) a cleft lip has been completed. These children were born in the period 1952 to 1956 and were randomly selected from all those in this category known to the Registry. This survey should reveal the degree of success attained in the treatment of these unfortunate children and whether or not any additional facilities for their treatment would appear to be necessary. The results of this survey, it is anticipated, will become available during 1961.

DENTAL PERSONNEL

As at June 1st, 1960, the ratio of dentists to the population in British Columbia was estimated at one dentist serving an average of greater than 2,500 persons. Five years ago this ratio was approximately 1:2,300. At that time in this Province, dentists resident in communities of less than 2,500 population served an average of 5,300 persons. To-day they attempt to serve no fewer than 9,300 people. Whilst the people of Greater Victoria, Greater Vancouver, and New Westminster are fortunate in having a ratio of dentists to population of 1:1,700, the people of the remainder of the Province (55 per cent of the total population) are served by only half as many dentists, at a ratio of 1:4,100. Making no assumptions regarding the establishment of a Faculty of Dentistry at the University of British Columbia, the past trends and the future estimated trends of the ratio of dentists to population in British Columbia are demonstrated in the following table:—

Ratio of Dentists to Population in British Columbia, 1945–60, and Estimated Ratio, 1965 and 1970

Year (Jan. 1)	Ratio of Dentists to Population	Year (Jan. 1)	Ratio of Dentists to Population
1945	1:2,326	1960	1:2,459
1950	1:2,203	1965	1:2,707[1]
1955	1:2,298	1970	1:2,937[1]

[1] Estimated.

Since 1952 the increase in population of the Province has been consistently greater, on a proportionate basis, than the increase in size of the dental profession. If this trend continues, and there is no reason to believe it will not, then in the next ten years it can be clearly shown that we may expect in this Province an approximate total of only 770 dentists instead of the 1,060 needed to serve the people to a degree no greater than prevailing in 1951.

GENERAL

With the most helpful co-operation of the Radiation Protection Division of the Department of National Health and Welfare, a survey has been commenced of the dental X-ray units of this Province. Whilst it is considered that the use of dental X-rays is essential to the adequate diagnosis of many patients seeking dental treatment, nevertheless the radiation to both patients and operators must be held to a minimum. Therefore, to each dental office is offered a service to detect if any excessive radiation exists from the X-ray unit. The dentist is advised of the techniques whereby radiation may be reduced to a minimum and also provided with a two-week film monitoring service. It is pleasing to be able to report that at the close of the year no such films had shown excessive radiation to be present.

During the past year, with the support of National Health Grants, the establishment of field dental officers of this Division was completed by the appointment of a fifth regional dental consultant. Thereby, in the future, such services will be available for the first time to all the rural health units of this Province. At the close of the year two such dental officers were attending the University of Toronto to attain postgraduate training in dental public health and will return to field duty in the early summer of 1961.

By the activities of this Division it is hoped not only to improve the dental health of the people of this Province, especially the children, but also to decrease the unmet needs for dental treatment. It is not dental care that is expensive, but dental neglect.

REPORT OF THE OCCUPATIONAL HEALTH DIVISION

J. L. M. WHITBREAD, DIRECTOR

The Division of Occupational Health functions as a part of the Bureau of Local Health Services and gives a consultative service in industrial health and emergency health to the local health units and metropolitan health departments. Co-ordination with other divisions of the Health Branch is required to obtain all consultative opinions on particular problems. Other departments of Government request information and advice on industrial hazards that arise in their particular field. Efforts have been made to expand the services of the Division to meet the additional demands for advice and guidance in the various programmes described under the appropriate headings below.

OCCUPATIONAL HEALTH

As a result of information obtained from a survey of industrial firms in British Columbia, plans were formulated to meet the two principal requirements before further developments in occupational health can take place.

First, the orientation and education of the public health staff in the field of industrial health was begun. With the assistance obtained from National Health Grants, fifty personnel from local health units and from the metropolitan health departments attended the Third Annual Occupational Health Conference held in Vancouver on February 26th and 27th. The issue of educational material to all local health departments and industrial firms has been continued through the Division of Public Health Education. Four sanitary inspectors were sent on an industrial health course early in 1960. The Director of the Division attended a refresher course in industrial medicine at the School of Hygiene, University of Toronto, from March 7th to March 11th, 1960.

Second, consideration has been given to the development of consultant laboratory facilities so that investigations can be made into the many occupational health problems that have been revealed by the industrial survey and the many inquiries received direct from the local health units, industry, and other departments of the Provincial Government. Cause and effect can be determined and the solution to the problem can be obtained in most instances. Steps will then be taken to rectify the health hazard and the economic loss.

Some problems are solved by obtaining equipment for use by health unit staffs. An example of this is the determination of the carbon monoxide content of air in factories and garages. These industries have been surveyed in some health units by using the M.S.A. carbon monoxide testers. The results of such surveys indicate the need for better ventilation or improved maintenance in factory machinery.

An amendment to the Regulations for the Sanitary Control of Industrial Camps permits the use of suitable trailers in construction camps, logging camps, and similar industrial camps.

EMERGENCY HEALTH SERVICES

The role of the Emergency Health Services is to ensure that at the time of disaster, whether this be a civil or a war disaster, the health facilities in British Columbia are fully developed to care for the population in the many aspects of national survival.

(1) Public health services must be expanded in time of disaster to cope with conditions that will arise as a result of decreased nutrition, overcrowding,

unusual contamination of water and food supplies, and the lack of existing immunization agents.

(2) Hospitals must be developed or expanded to treat the many casualties and the sick among the existing population and the evacuees from a disaster area.

(3) Medical units, called " casualty collecting units " and " advanced treatment centres," must be set up in all the larger communities throughout British Columbia to be available for the care of casualties in any disaster area.

(4) Assistance must be given to the Army Medical Services in order that they may carry out their role in a national disaster.

(5) Consultative service for radiation problems must be available to Civil Defence.

(6) Health supplies and equipment, stock-piled by the Department of National Health and Welfare, must be distributed when the need arises.

In order to co-ordinate all agencies involved in Emergency Health Services, an Advisory Committee has been meeting twice a year. During 1960 meetings took place in May and December to discuss the many problems involving the Emergency Health Services. This Committee consists of representatives from the various professional associations concerned with health, the St. John Ambulance Association, the Canadian Red Cross Society, and other departments of Government involved in Emergency Health Services, from the Department of National Health and Welfare and from the Army Medical Services.

The Emergency Health Services plan was rewritten and issued in August, 1960, to include the various changes in procedure and policy since the first plan was published in 1959. This plan is an operational plan, outlining the proposed operational requirements for Emergency Health Services in all communities throughout British Columbia. A personnel plan must be developed by all zones and areas. A supplies plan has been drafted by the Emergency Health Services supply officer, appointed on August 28th, 1960, to ensure the distribution of Federal stock-piles of medical stores and equipment. Local supplies for Emergency Health Services should be surveyed in each community to enable the establishment of the various health services facilities, even though Federal supplies may become available.

The Federal stock-pile of medical stores and equipment has been established in the Army depot at Chilliwack under the control of the National Emergency Health Services and the Army Medical Services. These health supplies and equipment, worth approximately $1,000,000, will be available when a national war disaster is anticipated.

Hospital disaster supplies have become available to all hospitals who submit plans to the Provincial Government, indicating that they are prepared for action in case of (1) a disaster in their own hospital; (2) a local disaster in their community or in some other community of British Columbia; or (3) a national emergency, when expansion or evacuation of the hospital may be necessary, depending on its location.

Many exercises have been held throughout the Province to stimulate the hospitals in the development of their disaster plans. These have been successful in that many hospitals are prepared to handle any situation. The plans are reviewed by the Provincial Hospital Disaster Planning Committee, with representatives from the Provincial civil defence organization, British Columbia Hospital Insurance Services, and the Health Branch. After review, the hospitals are informed of any necessary amendments, and when the plans are approved, disaster equipment is issued. Seven hospitals have received their disaster equipment during 1960.

Continuity of government is essential during survival operations of a war emergency. Arrangements have been drafted for action by the Health Branch to ensure that key personnel, equipment, and records will be available during and after the fight for national survival.

Training of Emergency Health Services personnel has been carried out by the Provincial civil defence organization in co-operation with the Provincial Emergency Health Services and has proved very satisfactory during 1960. Forty-five nursing administrators attended a course from January 18th to 21st and thirty-nine physicians attended a course from February 22nd to 24th. These courses were held in Victoria. Eight physicians and three dentists from British Columbia attended the two Federal physicians' and dentists' orientation courses at the Civil Defence College, Arnprior. The Federal course for nursing instructors was attended by ten nurses from the larger hospitals and public health services in British Columbia. Home-nursing and first-aid classes were given in many localities throughout the Province during 1960. These courses were well attended, indicating that public interest in preparedness is improving.

Training equipment for an advanced treatment centre was requested from the Federal Emergency Health Services. Several areas intend to raise and train these units. The need for demonstrations of the advanced treatment centre and the 200-bed improvised hospital has been recognized, and arrangements have been made for these exercises during 1961. All professional health associations and voluntary organizations involved in Emergency Health Services give their support to the training of personnel and the development of Emergency Health Services plans throughout British Columbia.

RADIATION PROTECTION SERVICES

Satisfactory progress has been made in expanding the radiation protection services during 1960. Discussions have been held with Medical Health Officers at their semi-annual meetings, and visits have been made by the Radiological Technical Adviser to many areas. Through the efforts of the Medical Health Officers and their staffs, the hazards of excessive radiation have been reduced.

A survey of fluoroscopic machines used in shoe-stores was carried out in November, 1960. It was found that there were only six machines present in shoe-stores in British Columbia, and three of these were only rarely used by the shoe-store operators.

British Columbia associations of the health professions using X-ray sources for diagnostic and treatment purposes have expressed their interest in co-operating with the Division's efforts to reduce excessive radiation to the public. With the assistance of the Director of the Division of Preventive Dentistry, discussions have been held with the executive of the British Columbia Dental Association. In 1960 a survey was started, with the help of the regional dental consultants, of all X-ray machines used by dentists in British Columbia. The Radiation Protection Division of the Department of National Health and Welfare made available its monitoring film services so that monitoring films can be used in the survey of dental X-ray machines. This survey will be completed in 1961. Dental consultants discuss with the local branches of the Dental Association methods of reducing radiation exposure from their X-ray machines. The co-operation on the part of the dental profession has been most satisfactory.

On September 24th the Director of the Division and the Radiological Technical Adviser attended a meeting of the British Columbia Chiropractors' Association and outlined the radiation protection services programme and discussed the

methods that could be used to decrease unnecessary radiation from X-ray machines. A similar meeting was held with the Vancouver and Fraser Valley Association of Veterinarians on November 15th, 1960. This approach to the professional users of X-ray machines has proved successful.

During the summer of 1960 the Radiological Technical Adviser visited northern and eastern health unit areas and surveyed not only hospital radiological departments, but also apparatus used by the various health professions. His visits were well received and revealed many defects in radiation protection devices. Continuance of these surveys by the Radiological Technical Adviser will assist to a considerable extent in reducing radiation to the users of X-ray machines and to the public. The future plans are to visit all radiation sources, whether X-ray machines or radioisotopes, to familiarize operators with the most modern methods of radiation protection and to indicate to them the hazards which presently exist so that steps may be taken to rectify them.

During the past year, reports from the Radiation Protection Division of the Department of National Health and Welfare on the film badge service have been received by the Division, and where excessive exposure is indicated, action has been taken either directly or through the Medical Health Officers to stimulate action on the part of business establishments to remove such hazards that may be present.

New regulations on health and safety have been passed by the Federal Government under the *Atomic Energy Control Act* to improve the control of radioisotopes. Under these regulations the Director of the Division has been appointed the Provincial health authority for radiation, and it is planned to have inspectors appointed under these regulations during 1961.

EMPLOYEES' HEALTH SERVICE

An increase in the activities of the Provincial Government Employees' Health Service occurred during 1960. As a result of the availability of poliomyelitis vaccine, 550 employees received boosters to their previous poliomyelitis vaccination series, 333 completed their course of immunization, and 169 new series of poliomyelitis vaccinations were completed. It is hoped to have every Government employee immunized against poliomyelitis by the end of 1961.

Steps toward the extension of the Employees' Health Service have been taken to include Provincial Government employees in the Vancouver metropolitan area. Equipment and personnel have been obtained, and suitable accommodation should be available early in 1961. Requests from various departments, as well as the Civil Service Commission, indicate the need for these services to improve the health of the B.C. Government employees and so improve efficiency and decrease absenteeism.

During 1960, as in previous years, the Canadian Red Cross Society Blood Donor Service held two clinics, one in June and one in December, the preliminary organization being done by the occupational health nurse. Provincial Government employees in Victoria gave 572 pints of blood at these clinics.

Information regarding the services supplied by the Occupational Health Unit in the Douglas Building is outlined below:—

	1958	1959	1960
Visits to clinic—			
Male	2,246	2,524	3,105
Female	1,994	2,117	2,743
	4,240	4,641	5,848
Immunizations and injections	1,220	1,443	2,635
Tuberculosis—diagnostic or treatment (chiefly reading tuberculin tests)	(1)	443	288
Employees' health cards on file	2,102	2,446	2,742
Existing conditions shown—			
Diabetes	9	12	13
Epilepsy	1	2	4
Kidney conditions	12	16	13
Heart conditions	33	35	44
Rheumatic or arthritic conditions	75	75	94
Tuberculosis	31	46	55
Back or head injuries	100	99	136
Other chronic diseases	79	88	104
Permanent defects due to illness or accidents	90	101	117

[1] Figures not available.

GENERAL

During 1960 standards for licensing all motor-vehicle drivers were reviewed and issued to all physicians by the B.C. Branch of the Canadian Medical Association. Physicians are therefore able to give better co-operation to Government officials in the efforts to determine whether or not a person is capable of driving a motor-vehicle. During 1960 approximately 5,000 reports of medical examinations for drivers were received.

The Welfare Licensing Institutions Board met regularly every month and reviewed applications for licensing. Several investigations were made with the help of the Medical Health Officers into applications considered to be unsatisfactory.

REPORT OF THE SANITARY INSPECTION SERVICE*

C. R. STONEHOUSE, CHIEF SANITARY INSPECTOR

The Sanitary Inspection Service had the opportunity during the year to assist health units in the evaluation of their sanitation programmes and found this to be a satisfying and stimulating experience. As a result of joint discussions, goals and objectives were established, methodologies were developed, and tools and techniques were further clarified. From the standpoint of both the Sanitary Inspection Service and the health units concerned, the experience was reflected in a measure of progress in the standards of service rendered, and this improvement was especially notable in the fields of food-service operations, in industrial operations, housing construction, and the many facets of community sanitation.

To meet the demand for service, the establishment of health unit sanitary inspectors has reached forty fully qualified sanitary inspectors.

Five sanitary inspectors attended the Provincial civil defence radiation monitoring course at the University of British Columbia. It is anticipated that the training will be utilized to augment the health unit contribution to local civil defence planning.

MILK-CONTROL

The study of the results of bacteriological tests on milk products and the coordination of the activities of the sanitary inspectors as milk inspectors for the Department of Agriculture were slightly less time-consuming due to the continuing improvement in milk quality.

Three vendors were convicted under the regulations of the *Milk Industry Act*. Two of those convictions were for distributing pasteurized milk which exceeded the limits of 1 coliform organism per millilitre, and the third was for the distribution of raw milk which exceeded 30,000 colonies per cubic centimetre. Also, one raw-milk vendor was convicted under a municipal milk by-law for selling raw milk from a non-approved raw-milk dairy-farm.

A municipal milk by-law for the Village of Golden was reviewed prior to approval by the Lieutenant-Governor in Council.

As in other years, the Sanitation Service processed a large number of requests for information in respect to milk testing and distribution. With the kind assistance of the Division of Laboratories, the Chief Veterinary Inspector, and Dairy Commissioner of the Department of Agriculture, the problems associated with the requests were solved.

FOOD-CONTROL

Prevention of food-borne illness continues to be the keynote of food-premises sanitation. Besides the required semi-annual inspection of each eating and drinking place, food-handlers' courses in techniques and practices are given special attention by the health unit personnel. In the Upper Fraser Valley the conventional short course was held. In the Boundary Health Unit, as in the previous year, the classes were extended to include members of voluntary organizations that cater to banquets. Sanitary inspectors also assisted in lecturing at the Food Service Institute held at Nanaimo for hospital cooks.

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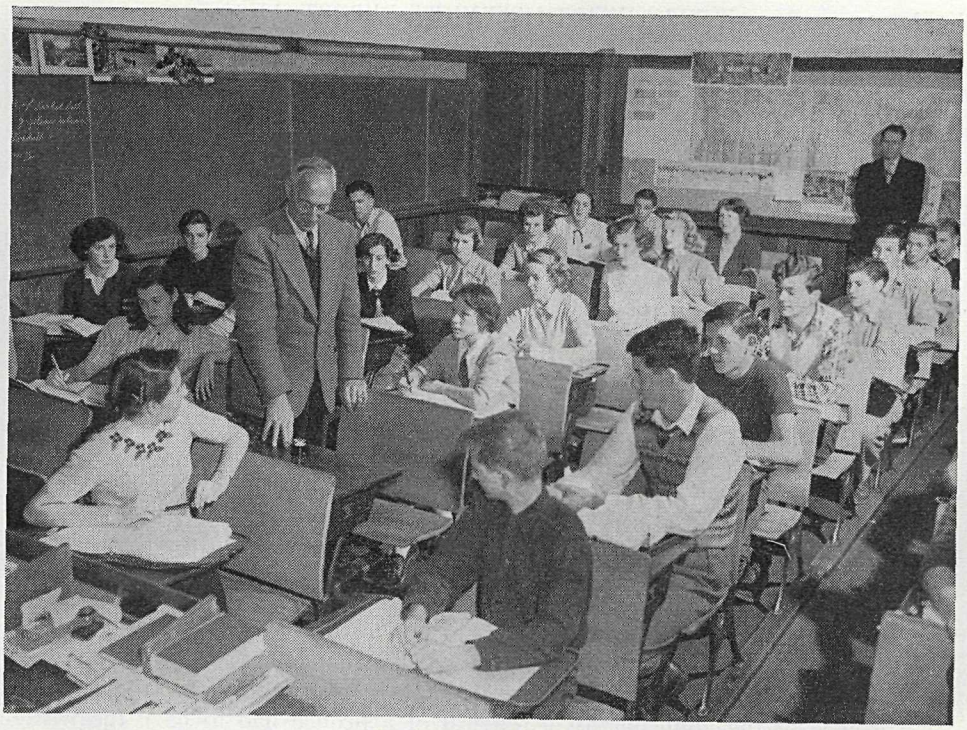
* This report concerns the services provided by sanitary inspectors under the jurisdiction of the Provincial Health Branch and does not include the services provided by the metropolitan health departments of Greater Vancouver, Victoria-Esquimalt, and Oak Bay.



In the classroom, the sanitary inspector, using his light-meter, checks to see that students are working under adequate levels of illumination.

As a step in determining the safety of domestic-water supplies, a sanitary inspector takes a sample from a well.

Food-handlers' classes, provided by local health units, began in a modest way. Later they were co-sponsored by the local branch of the Restaurant Association, and this was followed by the development of tourist clinics by the Government Travel Bureau. Arising from these earlier steps, it is gratifying to observe the commencement of an adult training programme by the Department of Education. The first class in Food Sales and Services for Waitresses, by the Department of Education, was held in Penticton under the auspices of the local School Boards and co-ordinated by a representative of the local Restaurant Association. The second class, at Trail, under the auspices of the School Board, was co-ordinated by the local sanitary inspector.

In addition to routine duties and food-handling courses, special studies are conducted on food premises. The Boundary Union Board of Health drafted a model "food establishment by-law" for the consideration of the five participating Municipal Councils of the Union Board. The Peace River Health Unit completed a two-year programme toward improvement of the eating-places on the British Columbia portion of the Alaska Highway.

SLAUGHTER-HOUSES

Eighty-one slaughter-houses were licensed during the year under the *Stock Brands Act*. Prior to 1950 the conduct of slaughter-houses was the source of numerous complaints. Since the requirement invoked in 1950 that the applicant for a licence or the applicant for a renewal of a licence had to have the written approval of the Medical Health Officer, more than half of the present slaughter establishments are new premises. In addition, many establishments now provide their own meat inspection service under the *Meat Inspection Act*. In the Cariboo the meat inspection is now provided at Prince George and Quesnel. Five establishments in the Fraser Valley inaugurated meat inspection during the year.

INDUSTRIAL CAMPS

The Regulations for the Sanitary Control of Industrial Camps stimulate the maintenance of an improved standard of housing for the logging, fishing, oil, and construction industries of the Province. The standards of housing which prevail have lessened the need for an annual inspection of each operation.

More than the usual quota of inquiries for copies of regulations and more than the usual quota of complaints were received. However, upon investigation, the complaints were of a minor nature and were readily and easily corrected by the camp operator.

For the past ten years the use of trailers as camp accommodation has continued to increase annually. The construction and interior features provided in trailers have shown considerable improvement through the efforts of employer, employee, and manufacturer. During the year the Regulations for the Sanitary Control of Industrial Camps were amended to modify the requirements for this type of accommodation.

SUMMER CAMPS

Summer camps are licensed under the *Welfare Institutions Licensing Act*. A requisite to obtaining a licence is satisfactory compliance with the sanitary standards for such camps.

In the 1960 evaluation of reports of seventy-three camps, 76 per cent were classified as good, 20 per cent as fair, and 4 per cent as poor or unsatisfactory.

Itinerant Scout camps are not included in the evaluation of camp accommodations on permanent sites. In all other respects, however, the health guidance is made available to Scout organizations.

TOURIST ACCOMMODATION

During the year several referrals by the Travel Bureau requested specific reports on tourist accommodation.

As many municipalities and unorganized territories are without by-laws or regulations respecting trailer courts and tenting spaces, the sanitary inspector is consulted to advise on the necessary layout and sanitary facilities.

SUBURBAN DEVELOPMENT AND SUBDIVISION APPROVALS

The extensive residential and commercial development beyond the boundaries of cities and villages has added to the sanitation work load of the health unit. The Medical Health Officer is routinely requested to advise on the suitability of the land for drainage, and on private water and private sewage disposal potential.

GARBAGE DISPOSAL

Information on refuse disposal in the unorganized portion of the Province was gathered by health units. This information was tabulated for the interdepartmental committee appointed by the Minister of Municipal Affairs to study the problems. The reports of 339 individual areas included a population of 151,000. Examples were noted of successful operation of collection and disposal systems on a weekly collection basis, with a nominal charge by co-operative bodies established as improvement districts under the *Water Act*. In the lesser populated communities without collections are many examples of community associations, Boards of Trade, Farmers' Institutes, and other local organizations maintaining disposal-sites in a satisfactory manner. No examples of arrangements under the *Local Services Act* were reported. It is anticipated that the results of the survey, now in the hands of health units, will stimulate many communities to minimize the local problems by their own efforts, as has been demonstrated by the reports on successful operations.

Three applications for approval of Crown land for garbage disposal purposes were reviewed and approved.

GENERAL

In the industrial hygiene programme, carbon monoxide testing services are now available to garages and industrial plants through the health units. Six units availed themselves of the testing equipment in 1960 for survey purposes.

There were three convictions under the Sanitary Regulations, involving such nuisances as illegal dumping of garbage, illegal dumping of animal entrails, and illegal dumping of septic-tank sludge.

Sanitation by-laws for the City of Prince George, the Village of Dawson Creek, and the Village of Comox and a by-law respecting keeping of birds and fur-bearing animals in Richmond were approved by the Deputy Minister of Health under the authority of section 634 of the *Municipal Act*.

REPORT OF THE NUTRITION SERVICE

JOAN GROVES, CONSULTANT

The present-day knowledge of nutrition has resulted in the realization that proper nutrition makes an important contribution to the physical health and well-being of the individual.

The practical application of this knowledge is an important aspect of health teaching and lies in the encouragement of good eating habits and a wise choice of food.

The Nutrition Service makes its contribution to the health programme by the provision of consultant service to public health personnel, to those involved with group feeding, and to other key people concerned with nutrition education.

CONSULTANT SERVICE TO PUBLIC HEALTH PERSONNEL

Consultant service has been given to the public health personnel to keep them up to date on the latest nutrition information and to assist with projects and problems. This has been done by visits to the health units, the provision of reference material, departmental circulars, and correspondence. Food-habit studies and rat-feeding demonstrations have been encouraged as a means of directing school-children's attention to the meals they are eating. Rats, which are used to demonstrate the value of good eating habits, are supplied through the courtesy of the Animal Nutrition Laboratory of the University of British Columbia.

CONSULTANT SERVICE TO HOSPITALS AND INSTITUTIONS

In co-operation with the Hospital Insurance Service, visits have been made to ten hospitals in the Province to give assistance with problems of food service. Assistance was given in menu planning, purchasing, cost-control, food preparation, and work planning. A considerable number of inquiries have been answered by correspondence and advice has been given on hospital plans.

A five-day food-service institute was held in October at the health unit in Nanaimo. Twenty-six cooks from hospitals not employing staff dieticians attended. These cooks came from Vancouver Island centres, Coastal communities, and a few Interior centres. National Health Grants enabled this project to be undertaken, being used to defray incidental expenses for travelling and accommodation of the guest speakers and of those attending.

Other institutions throughout the Province have availed themselves of the services of the nutrition consultant—namely, the Provincial Home, Kamloops; Tranquille School; the G. F. Strong Rehabilitation Centre; the Dominion-Provincial Training School, Nanaimo; the Allco Infirmary; and The Woodlands School.

SERVICE TO OTHER DEPARTMENTS AND AGENCIES

A talk was given on emergency feeding at a civil defence course for welfare directors. Discussions on low-cost menu planning were carried out with a Red Cross Home Emergency Service group.

Numerous inquiries regarding nutrition and group feeding have been received and dealt with from private individuals, from the Food and Drug Directorate, the Provincial Department of Agriculture, and the Oak Bay public health service.

OTHER ACTIVITIES

Membership continues with the British Columbia Nutrition Co-ordinating Committee (formerly the Vancouver Nutrition Group). This Committee has recently revised the low-cost food allowance list. The aim of this group is co-operation with others working in the field of nutrition.

REPORT OF THE DIVISION OF VITAL STATISTICS

J. H. DOUGHTY, DIRECTOR

The Division of Vital Statistics provides a centralized bio-statistical service, fulfilling the statistical requirements of all other divisions of the Health Branch, the Mental Health Branch, and a number of large voluntary health agencies. It is charged with the responsibility of collecting, compiling, and analysing statistical data stemming from the many health services of these official and voluntary agencies, including statistics required for programme evaluation and administrative control. In addition, it operates the Province-wide vital statistics registration system and administers in entirety the *Vital Statistics Act,* the *Marriage Act,* and the *Change of Name Act.*

In order to carry out its extensive statistical duties, the Division is equipped with modern mechanical tabulation machinery and employs trained bio-statisticians and statistical clerks. Its registration services are provided through the central office in Victoria and through approximately ninety district offices situated at convenient locations throughout the Province.

One of the gratifying developments of recent years has been the increased awareness on the part of professional and administrative personnel in the medical and public health fields of the value of statistical information, and an increased disposition to utilize analytical statistics in planning and administering health programmes. This has resulted in a steadily expanding work load for the Division of Vital Statistics and an increasing involvement in the programmes of other divisions and agencies. This trend was again manifested in 1960, when several new statistical projects were undertaken by the Division and more extensive use was made of data derived from previously established statistical systems.

In the field of vital statistics registration it is also gratifying to report that almost 1,000 Doukhobor couples have availed themselves of the privilege of registering marriages which had been performed according to Doukhobor custom, as authorized by the 1959 amendment to the *Marriage Act.* These marriages were all registered after the parties concerned had appeared before Magistrate William Evans, who had been appointed as the Special Marriage Commissioner to inquire into such applications and to make recommendations respecting registration. The Division is most appreciative of the help and co-operation of Magistrate Evans in achieving this notable registration success.

It was with regret that the resignation was received of Mr. G. C. Page, who had served with the Division for over twenty-five years, and for the last twelve years had held the position of supervisor. Mr. Page was responsible for many improvements in the vital statistics registration system in this Province, and his departure to assume a more advanced position in the business world was a distinct loss to the Health Branch. Mr. P. W. Weston, who has also had extensive experience in the Division, was promoted from his former position as Inspector of Vital Statistics to fill the vacancy created by Mr. Page's resignation. Mr. H. H. Gardner, formerly head of the Registration Section of the Division, was appointed as Inspector of Vital Statistics.

TUBERCULOSIS STATISTICS

NEW PROCEDURES IN TUBERCULOSIS STATISTICS

The major change in the method of recording and filing the medical history and treatment information respecting tuberculosis patients, which was planned

during 1959, was effected in 1960, and the associated changes in the handling of the statistical data were accomplished with a minimum of difficulty. One of the features of the new system was the development of regional active-case registers, and this required close co-operation between the Division of Vital Statistics and the Division of Tuberculosis Control respecting both forms and procedures. The implementation of the new system also involved a general review of some of the more important medical-record forms in use, and the Division of Vital Statistics participated actively in this work.

The introduction of the new system also made possible a major improvement in the mechanical tabulation procedures respecting tuberculous cases. Previously separate index punch-cards and statistical punch-cards were prepared for all new cases reported, but during 1960 a single combined index and statistical card was devised. All cases reported from the first of the year were processed onto this new card, and the complete file of known cases was converted from the two-card system to the single-card system. This involved some 25,000 punch-cards respecting known tuberculous cases and approximately the same number of cards covering cases with non-tuberculous chest conditions.

As part of the conversion project, an extensive review was made of the entire case load of both tuberculous and non-tuberculous patients. Special attention was directed to locating cases which had been unreported for some time, or which had moved to an unknown address. With the co-operation of the Vancouver Metropolitan Health Committee, every case shown as being resident in Metropolitan Vancouver was checked and verified.

The change to the single-card system has resulted in a considerable simplification in the processing of information respecting new cases and of follow-up information respecting known cases, and has led to an over-all economy in the punching, verifying, and tabulating of tuberculosis case records and a substantial saving in punch-card storage space.

Tuberculin Testing Statistics

The Division received the records from all tuberculin testing surveys carried out and provided analyses of the populations surveyed and of the tuberculin testing results for the Division of Tuberculosis Control. Approximately 24,000 tuberculin testing records were processed onto punch-cards for this phase of the tuberculosis case-finding programme.

Tuberculosis Out-patient Anti-microbial Therapy

In June the Division of Vital Statistics was consulted regarding the possibility of punching data on patients involved in the anti-microbial programme of the Division of Tuberculosis Control. It was agreed that this could be done, and a code and a statistical summary sheet were drawn up and approved. Information on certain patients was punched and tabulated during the year, and the resultant statistics are at present under study in the Division of Tuberculosis Control. It is anticipated that further cross-tabulations will be required. It is intended that this research project will be continued in 1961.

Other Tuberculosis Statistics

The Division continued to process the admission and discharge records of all patients entering and leaving tuberculosis institutions in the Province. It addition, statistical analyses of all B.C.G. vaccinations carried out were undertaken. Alpha-

betical and numerical indexes of all known cases were prepared for the Division of Tuberculosis Control. Monthly, quarterly, and annual statistical reports were prepared covering new cases reported, the known case load, and the treatment of patients in sanatoria.

Use of Statistics in the Tuberculosis-control Programme

The processing of statistics for the Division of Tuberculosis Control was one of the first projects undertaken by the Division in the field of health statistics. Over the years these statistics have played an important role in the tuberculosis-control programme, and in many instances have resulted in important changes in this programme. For example, statistical analyses showed that there was a considerable number of newly reported cases being found in the age-group over 30 years. In order to reach and examine this group more completely, the community and industrial case-finding surveys were intensified. Other statistics showed that certain school districts had a greater number of tuberculosis cases being reported than had others, and this appeared to indicate that a reservoir of tuberculosis cases existed in these areas. Consequently, special emphasis was laid on surveying the high-incidence and high-prevalence areas. The operation " Doorstep," which was carried out two years ago in Health Unit No. 1 of the Vancouver Metropolitan Health Committee area, was undertaken in the light of the high prevalence found to exist in that area.

Five years ago a statistical study was set up covering cases treated surgically within the Division of Tuberculosis Control. Data from the first three years of this project have now been tabulated and have been studied by the medical staff in the Division of Tuberculosis Control. These data have resulted in certain important changes being made in the surgical management of tuberculosis cases.

The study involved the statistical recording of the pre-operative data, the data respecting the operation itself, and the data concerning the post-operative effects respecting all cases undergoing surgery. Along with this there was a special method of examining the surgically removed lung tissue. A photographic record of the lung tissue was made, and this was correlated with the X-ray of the patient. The statistical recording of these pathological data revealed a need for improvements in the medical terminology in use, and after consultation between the Division of Tuberculosis Control and the Department of Pathology of the Vancouver General Hospital, these improvements were effected.

The statistical evaluation of the surgical cases also indicated that certain aspects of the X-ray required very careful study in order that the pre-operative diagnosis might be improved.

The accumulated statistics of this study of surgical cases also led to a change in the medical opinion respecting which tuberculosis lesions are suitable for resection and which should be treated by other methods. In consequence, there has been a definite reduction in the number of cases being brought to surgery.

Furthermore, the type of operation has been changed as a result of these studies. For example, segmental resections were shown to have five times the incidence of complications as had lobectomies. Hence, when faced with a choice of saving a segment or removing a lobe, the surgeons now prefer to remove the lobe because they feel that in the long run the patient will receive much greater benefit by the avoidance of complications.

This statistical study has demonstrated the important results that can accrue from the planned statistical recording and the statistical evaluation of medical and

public health programmes. It is reported here as being illustrative of the use to which statistics are put in the public health programme.

INFANT MORTALITY STATISTICS

For a number of years the Division has been carrying out a special study relating to infant mortality. This has involved the matching of the infant's death registration with the corresponding birth registration and physician's notice of birth and the correlation and analysis of the facts relating to the infant both at birth and at death. It has also involved the detailed analysis of all births occurring in the Province in order to make possible the compilation of specific mortality rates. During 1959 an extensive analysis of six years' data from this project was undertaken, and early in 1960 three special reports dealing with various aspects of infant mortality were prepared.

The study included over 194,000 births and over 4,400 associated infant deaths. It provides an extensive collection of statistical data which should contribute to a better understanding of the factors associated with the mortality experience of infants under 1 year of age. Some of the data compiled are already being used for teaching purposes in medical schools in Canada. Among other things, the data revealed certain differentials in infant mortality between regions of the Province and even between certain groups within the same region. These differences are being further studied with a view to pin-pointing the specific causes of the excess mortality. In some instances, data specific for particular hospitals have been made available to the hospitals concerned on a confidential basis in order that the hospitals might critically compare their own infant mortality experience with the total Provincial picture.

VENEREAL DISEASE STATISTICS

The statistics of the Division of Venereal Disease Control have also been produced by the Division of Vital Statistics for many years, and they have had an important bearing on policies and programmes of that Division. Two major series of statistics are processed, one relating to the incidence of new venereal disease cases reported in the Province, the other relating to the epidemiological activities of the Division of Venereal Disease Control in case-finding and contact investigations. From these two series, monthly, quarterly, semi-annual, and annual statistical reports are prepared. These reports include a number of specially computed indices which indicate the degree of success being attained by the Division of Venereal Disease Control in case-finding, contact-tracing, and medical examination of contacts.

Immediately upon receipt of these reports in the Division of Venereal Disease Control, certain key data, including the contact indices, are transferred to a series of continuous charts which are maintained for administrative purposes. These charts are used as a monitor on the several phases of the venereal disease control programme, and on the current status of the venereal disease problem in the Province.

During the year special arrangements were made for the statistical study of venereal infection amongst homosexuals. Also, during the year the Procedure Manual for Venereal Disease Statistics was thoroughly revised and improved. A number of special requests for statistical information respecting venereal disease were dealt with. One of these requests involved the preparation of an extensive body of information to be used in connection with a study being conducted by the

Community Chest and Councils of Greater Vancouver relating to the problem of Indian girls in an urban setting.

EPIDEMIOLOGICAL STATISTICS

The Division continued to handle the notifiable-disease reporting system and to compile the weekly and monthly notifiable-disease reports. Special records were maintained on the incidence of poliomyelitis during the period of the outbreak, and close contact was maintained with the Director of Epidemiology in planning a detailed analysis of the 1959 and 1960 cases.

The Division also operates a registry of all cases of cancer diagnosed in the Province. A special statistical report on cancer morbidity and mortality is prepared annually by the Division.

PUBLIC HEALTH NURSING STATISTICS

During the year a special report was issued setting forth an analysis of the home care programmes operating in the Province in 1959. Statistics from this report were of assistance in planning the additional home care services for which funds were provided during the year. Slight modifications to the home care reporting form were instituted in 1960 on the basis of the previous year's experience, and provision was made for several additional items of information. These changes will increase the value of the resultant statistics.

Data from the annual time study of public health nursing activities was processed mechanically, and an analysis of the results provided to the Director of Public Health Nursing. The Director was also provided with routine analyses of public health nursing activities as derived from the nurses' daily reports.

DENTAL-HEALTH STATISTICS

Another in the series of community dental-health surveys based on statistical samples of school-children was completed during the year, and the results were published in three special reports of the Division. Two of these reports analysed the results of the 1960 survey, which covered the Okanagan and northern regions of the Province and the municipalities of Victoria, Esquimalt, Saanich, and Oak Bay. The other report presented a summary of the results of the 1958–60 surveys, which together covered samples of all but a small proportion of the Province's school-children. These statistical reports are the source of valuable information, hitherto unavailable, which is used extensively in planning the programme of preventive dentistry. The statistics provide an indication of the general level of dental health amongst school-children in the Province, as well as information concerning the variations in dental health by age and by geographic region. They also provide information which is essential to the evaluation of public health dental programmes.

The two other projects were carried out jointly by the Division of Vital Statistics and the Division of Preventive Dentistry. One of these related to an assessment of the extent of the cleft palate and hare-lip problem, and the other to an assessment of the effectiveness of the topical application of a solution of stannous fluoride to children's teeth. The first of these studies was completed during the year, and an analysis of the results was begun. The second stage of the Victoria stannous fluoride study—namely, the re-examination of the survey group—was commenced toward the end of the year. Similar studies were initiated in two other areas of the Province.

REGISTRY OF HANDICAPPED CHILDREN AND ADULTS

Effective April 1st, 1960, the former Handicapped Children's Registry was expanded to become the Registry for Handicapped Children and Adults. This change was made as a result of planning which had been in progress in the Health Branch for several years. In the eight years of operation of the Handicapped Children's Registry, its value in furthering the care of handicapped children had been clearly demonstrated, and it was felt that similar advantages would accrue to many handicapped adults if the age-limit of the Registry could be removed.

The expansion of the Registry to cover handicapped persons of all ages presents a number of problems and raises a number of questions respecting the definition of a registrable handicap, the type of information to be recorded respecting handicapped adults, and the disposition of cases registered. For these reasons, the general registration of handicapped adults is not yet being invited, but rather certain specific groups of handicapped persons are being registered on a pilot-study basis. With the experience gained in this initial phase, the Registry will be in a better position to deal expeditiously with the general registration of handicapped adults. In general, the expanded Registry will follow the same policies and procedures which have proven to be satisfactory and effective in the Handicapped Children's Registry.

During the year a statistical report of the Handicapped Children's Registry for 1959 was prepared by this Division. The statistical data which have been accumulating through the years of operation of the Registry are now assuming significant proportions, and it is possible to compute certain minimum incidence and prevalence rates for certain disabilities and congenital malformations. In the Registry report, some of these rates are compared with similar rates which have been published elsewhere.

The report gives some indication of uses that have been made of the statistics gathered by the Registry to date. For example, it was possible to show after a very few years of operation that the problem of the retarded child was quite a major one in this Province. Registry statistics also revealed that most of these children remained within their own communities, and that there was a large group of them who were of school age but who were not receiving any form of education or training. The newly formed British Columbia Association for Retarded Children received this information and used it as a basis for action. This led to the establishment of a large number of day-schools for retarded children in many communities throughout the entire Province.

The Registry statistics also pointed up the number of children who suffered from deafness or were hard of hearing in British Columbia, and also revealed that these children were not being registered or their defects brought to attention at an early enough age. This resulted in more emphasis on early detection and registration of these cases, and subsequently the size of the group registered brought about the development of a programme for hearing which may avoid the necessity of many of these children having to go to a special school. A great many of them, it is anticipated, will be educated in the normal school system.

These are but two of many examples which might be cited of the effective use of the statistics of the Registry. However, in addition to serving as a statistics-collecting agency, the Registry performs valuable service in providing liaison between the various treatment centres and private voluntary organizations engaged in the care of handicapped children. Furthermore, while not offering a direct medical service to the handicapped child, the Registry has been instrumental in bringing a large number of handicapped children to the most appropriate medical care.

MENTAL-HEALTH STATISTICS

The Division of Vital Statistics provides a full statistical service to the Mental Health Branch of the Department of Health Services and Hospital Insurance. This includes the processing of admission and separation reports for patients treated in institutions of the Mental Health Services, as well as the processing of the statistical records of adult patients treated at the Mental Health Centre in Burnaby.

During the year many meetings were held with the Geriatric Division of the Mental Health Services with a view to setting up statistical records and procedures for that Division. The planning is now in its final stages, and it is anticipated that the routine statistical processing will commence in 1961.

A number of special assignments relating to mental-health statistics were carried out during the year both for the Mental Health Services and for the Department of Psychiatry at the University of British Columbia.

OBSTETRICAL DISCHARGE STATISTICS

The processing of the obstetrical discharge records for the Vancouver General Hospital and Grace Hospital was continued during the year, and a large number of statistical tables was prepared for the benefit of these institutions. This project is part of a wider study of maternal mortality, maternal morbidity, and fœtal wastage in British Columbia which is being sponsored by the Department of Obstetrics of the University of British Columbia.

A number of other hospitals in the Province have indicated an interest in instituting the special obstetrical discharge report which is used as the basis for the statistics of this study, and it is anticipated that at least two of the larger hospitals will adopt the record during 1961. The use of the standardized detailed obstetrical record offers advantages to the individual participating hospital in the management of its obstetrics department in addition to the value of the statistical information which accrues from it.

EPILEPSY CENTRE STATISTICS

The first statistics were compiled for the Epilepsy Centre in Vancouver from the statistical summary sheets and punch-cards that were set up the previous year. The new system appeared to function very satisfactorily and to provide to the Medical Director the statistical information he requires.

CYTOLOGY STATISTICS

The statistical processing of the records of the Cytology Laboratory was continued during 1960, and close liaison was maintained with the staff of the Cytology Laboratory in the preparation and analysis of the statistical data required. A detailed manual covering the statistical procedures which have been set up for the handling of the cytology statistics was prepared and printed during the year. The volume of cytology records processed has risen from 35,000 in 1958 to more than 63,000 in 1960, and it appears that further increases may be expected as the programme continues to expand.

G. F. STRONG REHABILITATION CENTRE STATISTICS

The Division continued to provide statistical service to the G. F. Strong Rehabilitation Centre. This included the mechanical processing of the statistical records of the Centre and the preparation of an extensive set of tables respecting patients under care and treatments given.

In conjunction with the Registry of Handicapped Children and Adults, the G. F. Strong Rehabilitation Centre is conducting a vocational survey of its patients who were discharged in the year 1958/59, and the Division is assisting in the statistical aspects of this survey.

POISON CONTROL CENTRE STATISTICS

The mechanical processing of the records of the Poison Control Centre was continued by the Division during the year. A series of statistics relating to the reports submitted during 1959 was produced for epidemiological study. These statistics classify the accidental poisonings according to health unit of occurrence, substance swallowed, age, fatal outcome, and various other categories. These data were discussed at the annual meeting of the British Columbia Poison Control Council.

B.C. GOVERNMENT EMPLOYEES MEDICAL SERVICES

Under a reciprocal agreement with the B.C. Government Employees Medical Services, the Division processes the claims records of the plan and provides certain administrative statistics for the directors in return for the privilege of utilizing the morbidity statistics which are produced.

An annual report is issued each year in the Division's Special Report series containing data relating to the utilization of medical services and the morbidity experience of enrollees in the plan. The report contains information respecting the distribution by age and sex of the persons covered under the plan, illness rates by age and sex for the major categories of illness, the proportion of illness, cost and service in each illness category, costs according to type of service and according to medical specialty, costs and volume of service according to the status of the subscriber, the volume and cost of operations performed, and many other classifications of data.

OTHER STATISTICAL ASSIGNMENTS

The Division continued to meet a large number of requests for statistical information from the public and from medical researchers. It continued to co-operate with the Biology Branch of Atomic Energy of Canada Limited in an important pilot study relating to the automatic linkage of vital records for studies in demographic genetics.

Members of the Division served on the Public Health Nurses' Record Committee, the Committee on Sanitation Records, and on record committees of the Vancouver Metropolitan Health Committee.

The Division also participated in the study of pedestrian traffic accidents among children which is being undertaken by the Department of Pædiatrics of the University of British Columbia.

REGISTRATION SERVICES

The Division of Vital Statistics also has major responsibilities in the registration field. These duties stem from its administration of the *Vital Statistics Act,* the *Marriage Act,* the *Change of Name Act,* and certain sections of the *Wills Act.* These Acts set forth a wide range of responsibilities, including the registration of all births, deaths, stillbirths, and marriages that occur in the Province, the registration of all adoptions and divorces ordered by the Supreme Court of British Columbia, the maintenance of a voluntary registry of wills notices, the issuance of burial permits, the licensing of ministers and clergymen for the solemnization of marriage,

the issuance of marriage licences, the appointment of Civil Marriage Commissioners, the granting of legal changes of name, and the issuance of certificates and certified copies relating to any of the registrations on file.

There was an increase of 2 per cent in the volume of registrations filed during the year over that of the preceding year. In addition, there was a 7-per-cent increase in the volume of certificates issued and a 6-per-cent increase in the revenue received by the central office. Preliminary counts of the more important registration services rendered by the Division in 1960 are as follows:—

Registrations accepted—	
Birth registrations	40,700
Death registrations	14,890
Marriage registrations	11,260
Stillbirth registrations	460
Adoption orders	1,530
Divorce orders	1,550
Delayed registrations of birth	460
Wills notices	7,122
Legal changes of name	468
Legitimations of birth	141
Alterations of given name	256
Certificates issued—	
Birth certificates	57,400
Death certificates	7,522
Marriage certificates	5,694
Baptismal certificates	41
Change of name certificates	644
Divorce certificates	250
Photographic copies of registrations	13,206
Revenue searches	40,211
Non-revenue searches	49,462
Revenue received by central office	$72,997

Vital statistics registration facilities are available to the public through ninety district offices which serve the seventy-three vital statistics registration districts of the Province. Thus a district office is to be found in most of the cities, towns, and larger villages throughout British Columbia. In each office there is an appointee known as the District Registrar or Deputy District Registrar of Births, Deaths, and Marriages. He is responsible for collecting registrations of all births, deaths, stillbirths, and marriages which occur in his jurisdiction. The Indian Superintendents of the nineteen Indian Agencies of the Province act as District Registrars for the Indian population within their respective Agencies.

The offices of fifty District Registrars and Deputy District Registrars and seven Indian Agencies were visited by the Inspector of Vital Statistics as part of the routine inspectional and training programme. The standard of work performed by the District Registrars throughout the Province was found to be very satisfactory.

REPORT OF THE DIVISION OF PUBLIC HEALTH EDUCATION

R. H. GOODACRE, DIRECTOR

The level and extent of service provided by this Division are related directly to the degree to which health education is incorporated into general programme planning and evaluation. Thus many of the developments occurring during 1960 are discussed elsewhere in this Report by those in whose programmes members of this Division participated.

PERSONNEL

Organizational plans outlined in the 1956 Annual Report have progressed as predicted. The introduction and improvement of efficient systems and procedures and the employment of adequate clerical and technical personnel have resulted in the development of an audio-visual aids and pamphlet service which is now becoming capable of meeting the many demands made on these facilities. The Division continued to benefit by the availability of a reference librarian from the staff of the Provincial Library who, in addition to guiding the cataloguing of Health Branch holdings throughout the Province, also served valuably in duties related to library research.

AUDIO-VISUAL AIDS AND WRITTEN MATERIALS

For many years the Health Branch has relied largely on the Department of National Health and Welfare for the availability of free educational literature and posters. However, there are indications that the current arrangement between the Federal and Provincial health services may not continue to the same extent enjoyed during the past. Another Federal Government agency, the Department of Agriculture, has ceased to issue free publications through its consumer section, and it would appear that, in future, copies of this Department's publications held by the Health Branch will have to be purchased from the Department of Public Printing and Stationery in Ottawa.

Due to the increasing multiplicity of sources and large-quantity requirements, it is no longer possible for the Health Branch to store all publications required by local health services. Nevertheless, facilities are still available for the issuing of over 250 different posters and pamphlets. This number excludes an additional 150 items available from such free sources as voluntary health agencies, from which local health departments now order direct. Administratively, it is interesting to note that whereas in 1950 fewer than 250,000 pieces were distributed from this office, ten years later, in 1960, the total was over 1,000,000.

As can be expected, film and filmstrip use has increased significantly during the same ten-year period. In 1950 the library consisted of 108 films and seventy-two filmstrips, with bookings in the neighbourhood of 500. In 1960 the library consisted of 440 films and 224 filmstrips, for which confirmed bookings totalled approximately 2,500. Of the film holdings, the largest single block (19 per cent) consisted of those used in sixty-two classes for expectant parents, a service to which, it has been reported, 1.4 per cent of the public health nurses' time was devoted.

In the multiplicity of educational aids available to local health services, the Division strives to avoid duplication, which is eliminated, or reduced to a negligible factor, by a co-ordinated review of the objectives of the programme in which the aids are being used.

With increasing attention being devoted to home care and community rehabilitation during the year, the services of this Division were called upon to develop a series of three pamphlets. Previously a bibliography of readily available reference material for staff guidance had been completed.

Following the redefinition of Departmental policy with respect to the provision of dental-health services, which included emphasis on early dental care for 3-year-old children, a comprehensive plan of dental-health education was developed together with the regional dental consultant for the Fraser Valley health units and the Director of the Boundary Health Unit. While prepared specifically for the Boundary Health Unit, this plan is also being effected in other areas of the Province. Included is the use of dental-health teaching kits, developed a year ago for teachers of Grades I, II, and III. These have been well received by teachers and, indeed, are now being purchased locally by some School Boards. It is quite apparent that the "kit" approach to health teaching in the schools is fundamentally sound, and it has been suggested that similar kits be prepared for other aspects of health teaching, as, for example, with respect to eyesight, in which the content can be related to care of the eyes, vision screening, etc. The development of this type of kit will undoubtedly be possible with the acquisition of a teacher to the staff of this Division.

Considerable time was devoted during the year to the preparation of television scripts scheduled for nation-wide presentation over the Canadian Broadcasting Corporation network in the early months of 1961. This Division was represented on a committee established for the Canadian Broadcasting Corporation to develop a total of ten such broadcasts. Other members of the committee consisted of the health educator with the Vancouver Metropolitan Health Committee and the programme director (a trained public health educator) of the British Columbia Tuberculosis Society, who was responsible for promoting the preparation of the series.

From time to time, on such occasions as the official opening of new health centres or health unit offices, local health unit personnel arrange public health displays, in which health services available to the public are depicted, together with other media having educational value. The Division acts in an advisory capacity on these occasions and supplies suitable material. Prominent items have been photographs and colour slides showing health unit activities, and the collection has been augmented during the year by new photographs and transparencies taken by a member of the Division. A continuous slide projector, purchased through National Health Grant funds, has been put to good use in these displays.

IN-SERVICE TRAINING

One of the main responsibilities of this Division is the co-ordination of in-service training designed primarily for staff of local health services. The primary function is the Annual Public Health Institute, which is a four-day training course for members of local health departments throughout the Province. The institute for 1960 was held in Victoria and was addressed by the main guest speaker, Dr. Halbert L. Dunn, Chief of the United States Public Health Service National Office of Vital Statistics. In addition to Dr. Dunn's series of four lectures, the four-day intensive agenda included lectures and discussions on rehabilitation, the health requirements of teen-agers, health requirements of the aged, and similar topics designed to keep staff informed on current trends and advances in public health. The Health Branch had recently acquired its own public address system, and this was installed and operated by members of the Division. The new equipment resulted in a much higher level of audience hearing efficiency than had been obtained in the past with rented equipment.

Members of the Division were involved in other forms of training, including a course for waterworks operators, discussed under the report of the Division of Public Health Engineering, and a one-day workshop for health teachers, organized jointly by the Vancouver Metropolitan Health Committee, voluntary health agencies, and the Provincial Health Branch, with representatives from local health departments in the Fraser Valley.

Instructional and informative manuals received continuing attention, notably the Policy Manual, prepared for the guidance of local health services; the Nursing Care Manual; the Nurses' Guide for Expectant Parents Classes; and poison-control information material for Poison Control Centres located in general hospitals throughout the Province.

STAFF ORIENTATION

The Division continues to be responsible for planning the personnel orientation schedules for newly appointed staff members of the medical and dental professions. Three health unit directors and two regional dental consultants visited Victoria and Vancouver for this purpose. They were familiarized with the work of the various bureaux and divisions, and with the functioning of the Mental Health and Hospital Insurance branches of the Department, during their stay. Similar services were performed for the following guests from other nations, who were visiting British Columbia to study departmental policies and procedures in government: Mr. N. Soudi (Jordan), Mr. Kon-Sook Han (South Korea), Mr. H. De Four (West Indies), and Mr. O. Gurusinghe, Mr. R. W. M. A. Kapukotuwe, and Mr. K. D. H. Dharmawardane (from Ceylon, visiting Canada under auspices of the Colombo Plan).

REPORT OF THE DIVISION OF TUBERCULOSIS CONTROL

G. F. KINCADE, DIRECTOR

This is the twenty-sixth annual report of the Division of Tuberculosis Control in British Columbia. With the great changes that have taken place in the tuberculosis programme in recent years, it is of interest to reflect on the present situation and consider the changing problems.

While the first organized campaign against tuberculosis was initiated with the admission of patients for treatment to Tranquille Sanatorium in 1908, it was not until 1935 that the Division of Tuberculosis Control was created. This served to bring about a correlation of all the activities which had developed up to that time and were then being carried out by the sanatoria, the travelling clinics, and the local health services.

At that time the emphasis was on treatment of tuberculous cases, because this was the overriding problem, with people suffering and dying from tuberculosis in large numbers, not to mention the economic hardship and privation that was created as a result of widespread disease. The public health field service was in its infancy, but has since expanded to become a major force in the tuberculosis-control programme. While the treatment programme was successful in the saving of lives and in the reduction of deaths due to tuberculosis, the progress from the beginning of the century until the advent of anti-microbial therapy was very slow. However, this has changed since the new drugs came into use, and this success in treatment is reflected in closure of sanatorium beds and reduction of numbers of persons under sanatorium treatment.

Since the development of drugs for tuberculosis, treatment, which was formerly the major part of the programme, has now become secondary in importance to the field programme. Moreover, in the latter sphere of activity the emphasis is also changing. In the past the chief effort in the field programme was to identify the known cases of tuberculosis and the contacts of these cases so that they could be kept under surveillance. The point is now approaching where it becomes possible to contemplate the identification of all persons in the population who have been infected as a result of contact with tuberculosis and can be identified by a positive tuberculin reaction. It is not many years since it was accepted that practically all persons in the population would be infected with the tubercle bacillus by the time they reached adult life. Present studies indicate that, as a result of the control programme over the years, this incidence of infection has been markedly reduced, so that at the present time possibly less than one-third of the population is infected. This brings within reasonable bounds the task of identifying those who have been infected and of keeping this group under observation as possible sources of new cases.

There has been a marked reduction of tuberculous infection in the younger age-groups, and the great hope of tuberculosis-control is that we can prevent infection in this group by preventing their contact with known cases who may be infectious or might break down.

The problem, then, to-day is to carry on the treatment programme while at the same time continuing an energetic programme in the field to find new cases of tuberculosis as they develop, and to identify those people in the population who may be infected and might eventually break down with the disease. There are approximately 23,000 known cases of tuberculosis in British Columbia and an estimated 300,000 persons who have been infected. About 1 per cent of the known inactive cases break down each year and must be treated again. For that reason,

this group must be followed closely. Amongst those who have been infected, only a small percentage will develop disease, but it is this group that will produce the future tuberculosis cases.

TREATMENT

It is well known that the major achievement in tuberculosis-control has been in the successful treatment of those suffering from the disease. This success has been reflected in a marked reduction in the number of patients under sanatorium care. During the past eight years there has been a 65-per-cent reduction, from 838 patients under treatment at the end of 1952 to 294 patients under treatment at the end of 1960. This trend became apparent at the beginning of the present decade and showed a rapid acceleration, which has now begun to level off. The decline was rapid from 1953 to 1955, inclusive, with a reduction of seventy-four patients per year under treatment during this period. It further accelerated to ninety-one per year during the next three years, from 1956 to 1958, inclusive. However, during 1959 and 1960 this rate has decreased, and the numbers have only been reduced by nineteen per year during this period. This has represented about a 15-per-cent reduction in the number of patients each year from 1953 to 1957, with a 10-per-cent reduction per annum over the past two years.

The bed capacity was reduced another 8 beds in 1960 and now stands at 344 beds, 90 of these being at Willow Chest Centre and 254 being at Pearson Hospital. At the end of the year there were 64 empty beds in the Division. Most of the empty beds appear at Pearson Tuberculosis Hospital, and, as a result of the progressive-care plan for patients, these represent unstaffed beds when they are not in use.

A similar reduction in tuberculosis patients is also apparent in the Indian Health Services and in the Vancouver Preventorium.

We now have over one year's experience with the operation of the progressive-care plan in the Tuberculosis Division. This is essentially a self-help scheme in which the patients take as much responsibility for their own care as is possible, depending on their physical and mental state. This is part of the physical rehabilitation process to prepare patients so that on discharge they will be able to look after themselves in their home environment and thus lessen the stresses of the transition period when the patients are moving from sanatorium to their normal environment. Patients in sanatorium are now segregated into three types—those on intensive care, standard care, and minimum care.

The provision of minimum-care facilities at Pearson Hospital has proven very beneficial. After a year's trial these wards seem to have worked out satisfactorily, and it is felt that the main objective, which is the patient's recognition and acceptance of responsibility for his or her own care, particularly in the taking of their own drugs, has been achieved. In addition to this, the patients have received as good care as formerly, and have been able to have more freedom within the hospital on their own wards and with regard to leave away from the hospital than the patients on the intensive-care wards. The patients have taken very kindly to use of the washing-machine and drier, to being able to prepare snacks for themselves, and also to the added recreational facilities at their disposal, with nothing but beneficial results.

It is becoming obvious that once patients are transferred to the minimum-care unit, they feel they are well on their way to recovery and discharge from hospital, and the pressures to leave hospital are increased. The trend is to discharge patients from hospital more quickly when they demonstrate that they are able to look after themselves adequately and conscientiously take their medicines. This, of course,

leads to the largest number of empty beds in the institution being located in the minimum-care unit, and there has been a situation during the year of 20-odd beds being empty in the institution at times but not available on the intensive-care units.

A tendency is gradually developing of transferring maximum-benefit cases to the minimum-care unit, and certainly this does the patient no harm, but over the course of time will result in a core of patients accumulating there who have little chance of being discharged, and their numbers will probably increase gradually for the next year or so.

It does give one a great deal of pleasure to report that the plan is working satisfactorily, that the patients seem to be doing well while they are sharing some responsibility for their own care and to be able to report a very substantial saving in the cost of running the institutions. To make the most efficient use of the ward personnel, a constant review of the staffing requirements has been carried out by the superintendents of nursing, and rearrangements of duties amongst the various types of ward personnel is constantly taking place. This has resulted in the provision of a high calibre of care with a minimum of staff and has made possible some staff reductions.

Age Distribution in Sanatoria

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, 1957	448	217	48.4
November, 1958	332	189	56.9
November, 1959	331	161	48.6
November, 1960	294	169	57.4

For some time now it has been apparent that tuberculosis is a greater problem in the older person than it is in the younger person. A generation ago this was quite the opposite, and tuberculosis was considered to be a disease of late adolescence and early adult life, particularly in females. This change is reflected in the sanatorium population, and from the above table it will be seen that an increasing percentage of the patients in sanatorium are 50 years of age and over, and while there has been a reduction of 65 per cent in the total sanatorium population, there has been a reduction of only 39.8 per cent in the sanatorium population 50 years of age and over. In fact, during the year 1960 there was a further increase in the number of persons 50 years of age and over in sanatorium. There are more than four times as many males as females 50 years of age and over in sanatorium. In the total sanatorium population, 76.2 per cent are males, making a ratio of about 3 to 1. To a large extent the accumulation of older persons in sanatorium is the result of the success of the newer forms of treatment. In earlier days these patients would have died, but with the newer drugs they have been kept alive but have not recovered sufficiently to leave sanatorium.

COMMITTALS TO SANATORIUM

It has previously been reported that until the end of 1959 there had been forty-five recalcitrant tuberculous patients committed to sanatorium. During 1960, committal orders were issued on four additional patients. Two were committed at the beginning of the year and both have now been discharged; one successfully completed treatment, including chest surgery, and the other improved to the extent

that he could be released. The third and fourth cases were only admitted during the last month of the year, and before the end of the year one of them had died. The other is still in hospital. At the end of 1949 there were five patients under committal in hospital, three in the Division of Tuberculosis Control and two in Essondale. Of these five, one was released from Essondale, one has been released on probation, one has been transferred from Essondale to Pearson Tuberculosis Hospital, another remains in hospital, and the fifth one died. An additional case allowed out on probation in 1958 returned voluntarily for further treatment in sanatorium and still remains.

At the end of 1960 there were four committal patients remaining in the hospitals of the Division of Tuberculosis Control.

CLINIC SERVICES

The responsibility for the follow-up and supervision of all the known cases of tuberculosis in the Province outside of sanatoria rests with the clinic services of the Division, the staff of local health services, and the family physician. This is provided by three stationary clinics, located in Vancouver, Victoria, and New Westminster, and by four travelling clinics, which hold clinics regularly in sixty-four centres throughout the Province. Working closely with the public health services in the field, it is possible to keep in close contact with these patients and to provide good supervision. A consultive service is also provided to the medical profession for the investigation of chronic chest disease, and in this way an appreciable amount of tuberculosis is discovered.

At the end of 1960 there were approximately 23,000 known cases of tuberculosis in the Province, of which 4,900 were Indian. Of these, an estimated 20,000 were classified as inactive and 1,400 were on treatment with tuberculosis anti-microbials as out-patients. Due to the relapsing nature of tuberculosis, long-term follow-up of these cases is necessary. In spite of the improvement in relapse rates that has occurred since the advent of anti-microbial therapy, we still find that approximately 1 per cent of the inactive cases reactivate each year, and this has proven to be one of the major sources of cases coming under treatment. During the past year approximately 102 cases reactivated.

STATIONARY CLINICS

Being located in the heavily populated areas, these clinics are responsible for the supervision of the great majority of tuberculous cases outside of sanatorium, and this is their chief work. However, they also carry on survey programmes for case-finding with miniature X-rays and tuberculin testing. Over the year there has been no great change in the volume of work carried on in these clinics, but there has been increasing use of the tuberculin test as a method of screening younger persons attending the clinics.

TRAVELLING CLINICS

The operation of the travelling diagnostic clinics for the past year has continued without any major change in policy. The change effected in the fall of 1958 when the Interior Travelling Clinic moved to Vancouver following the closing of Tranquille and the moving of the Kootenay Travelling Clinic records to Vancouver in 1959 brought about the centralization of travelling records in one office in Vancouver. This has been most satisfactory. In the previous report it was pointed out that the centralization of staff—that is, the travelling clinic tuberculosis officers—was of value because of the availability of staff to "cover off" during the absence of

one member. During the past year this was found to be particularly valuable when one of the doctors was off for a period of five months. The other members of the staff were able to cover the film-reading work without the necessity of having to call on someone else from within the Division.

Following the combined tuberculin and X-ray surveys done in the Okanagan area, it has been found that there is an increase in demand for clinic time spent in the area where the surveys have been done. For example, the Penticton-Oliver area used to require four and a half to five days, whereas in the last clinic a total of eight working-days was necessary to cover this area. Likewise, the duration of the Kelowna clinic has gone up from two or occasionally three days to four days. It is probable that all this increase will not be permanent, but a considerable number of the extra cases seen as a result of the survey will become regular attenders at the travelling clinics, and some increase in the time necessary to be devoted to these areas will result. This reflects itself in the number of days that the travelling clinic technician must spend out of Vancouver. Taking his total number of days out of Vancouver to cover the Okanagan, Cariboo, and Peace River, in 1960 this amounted to 109 clinic working-days. In the itinerary for 1961, this is estimated to be 135 days. Including travelling-time, the technician of the Interior Travelling Clinic will be out of Vancouver for 210 days in 1961.

It is planned to operate the travelling clinics during the coming year in the same manner in which they have been operated in 1960. The increased demand for services in areas that have had combined tuberculin and X-ray surveys, however, brings up the problem which has previously been raised; that is, the one of frequency of visits. At the moment it is impossible for the Interior Travelling Clinic X-ray technician to spend any more time travelling than at present. If this demand should increase as a result of continued surveys, it would be necessary to make some adjustment. Previously considered, and a distinct possibility, is changing the frequency of clinic visits from a basis of visits every three months to visits every four months. Even at the present time it is not possible to cover all the clinics on a three-monthly basis, and some centres are seen every six months, whereas other centres of equal size are seen every three months. A shift to a basis of four months might make it possible to cover all of the major centres on a four-month basis rather than seeing some at six-month intervals and others at three. The Coast Travelling Clinic currently operates on this basis for its far north trip, and it appears to work quite well. Further consideration to such a change will be necessary during the coming year.

A review of the statistics for the year's work shows no significant trends. The usual year-to-year variations (up or down) in the number of films read, under the categories clinic film, referred film, miniature hospital admission and out-patient films, and large hospital admission films, are noted. Only one consistent change is noted: hospital admission and out-patient miniature films read by the Interior Travelling Clinic are down (14,348 in 1958, 11,885 in 1959, 8,920 in 1960). The numbers are also lower this year in the Island and Coast Clinics, but up in the Kootenay Clinic. No obvious reason for this is apparent. The Division's policy of recommending no more than one routine film annually and advising against routine chest X-rays in persons under 18 years of age, unless they are tuberculin positive, may play some part.

TUBERCULOSIS SURVEYS

Previous reports have indicated that special emphasis has been placed on intensifying the programme of case-finding throughout the Province. Experience has shown that while there has been a marked reduction in the death rate from tubercu-

losis, the incidence of new cases has been declining much more slowly. This indicates that there are still unknown cases of tuberculosis in the population, and if the programme of tuberculosis-control is to progress, these cases will have to be brought to light.

The initial step two years ago was the formation of a tuberculosis-survey team, to be responsible for the planning and operation of this project. While X-ray surveys have been carried out for the past fifteen years, this tempo was rather slow, and this service could not have been extended to all of the population in the foreseeable future unless the coverage was increased. Moreover, it became apparent that the time had come for the introduction of tuberculin testing into the survey programme along with the X-rays, the aim being that all persons in the Province should be eventually tuberculin-tested.

The tuberculosis-survey team is composed of experienced and well-trained persons, each capable of providing a special service for the various phases of the programme. In this type of work many varying abilities are necessary for such things as the organization of local groups to assist in the programme, education and publicity, tuberculin testing, the taking of X-rays, and, of course, medical experience in tuberculosis. With the present staff this team is geared to do 1,000 tuberculin tests in school-children and 3,000 tuberculin tests and X-rays in adults weekly in community surveys.

This programme has achieved a considerable degree of success, which has come about as a result of a combined effort by the Division of Tuberculosis Control and the British Columbia Tuberculosis Society. All staff and equipment have been pooled, so that an intensive effort may be undertaken in each community survey. In view of the fact that the local interest in any programme can only be sustained for a limited time, through promotion and education, each survey must be completed quickly.

The Society has greatly increased its financial participation in this programme to supply both personnel and equipment, so that at the present time this participation represents the major activity of the Society. This organization is entirely responsible for the organizing and promotional effort to get the people out for examination. This, of course, is basic to any successful survey. In this they have achieved outstanding results through the use of local volunteers, as has been shown by about a 90-per-cent community participation in several centres in the Interior of the Province. In each centre visited the team strives for complete coverage of the populace, and, for that reason, facilities are made available in each block of the communities surveyed, with volunteers making a door-to-door canvas. This has made for much detailed planning and scheduling of equipment, but the participation of the people has made the additional effort most worth while. Previous surveys have shown that amongst those not participating there is a high rate of tuberculosis. Complete surveys are essential if we would achieve maximum success.

During the past year large-scale surveys have been held in centres widely scattered throughout the Province. These centres are as follows, and the number of persons examined in each survey is in parentheses: Victoria (17,688), Hope (1,957), Penticton (13,315), Kamloops (14,442), Prince George (15,102), and Greater Vancouver (44,143). At the end of the year a tuberculosis survey was just commencing in New Westminster. This will continue for three months into 1961.

TUBERCULIN TESTING

The increasing use of the tuberculin test in the tuberculosis programme was forecast in previous reports. The acceptance of this test by the public has been

most encouraging, and the volume of tests done during the year has increased very markedly. The purpose of this programme is to make it possible to identify all persons who have been in contact with the disease and have been infected. This group will then be given special attention for periodic check-up by chest X-rays in the future. Rather than X-raying all the population periodically, we will eventually be able to confine the use of chest X-rays for case-finding purposes to those who are known positive tuberculin reactors. With the decreasing percentage of the population now infected, this brings within the realm of possibility the continuation of supervision of these people on a selective basis, much as we now do the known cases of tuberculosis. As an example of how this would work, it can be reported that in 1959 a combined X-ray and tuberculin survey was carried out in the Oliver district. The positive tuberculin reactors were recorded and were told that they should have another chest X-ray one year hence. In 1960, when the mobile units were proceeding to the Okanagan area for community surveys, a short visit was made to the Oliver district. A notice was sent to all known tuberculin reactors informing them that the X-ray unit would be in their area on a certain date. The response to this notice was very satisfactory, and about 75 per cent of those notified turned out for examination. It is planned to use this method next year to examine the positive tuberculin reactors found in Penticton, Kamloops, and Prince George during the 1960 surveys.

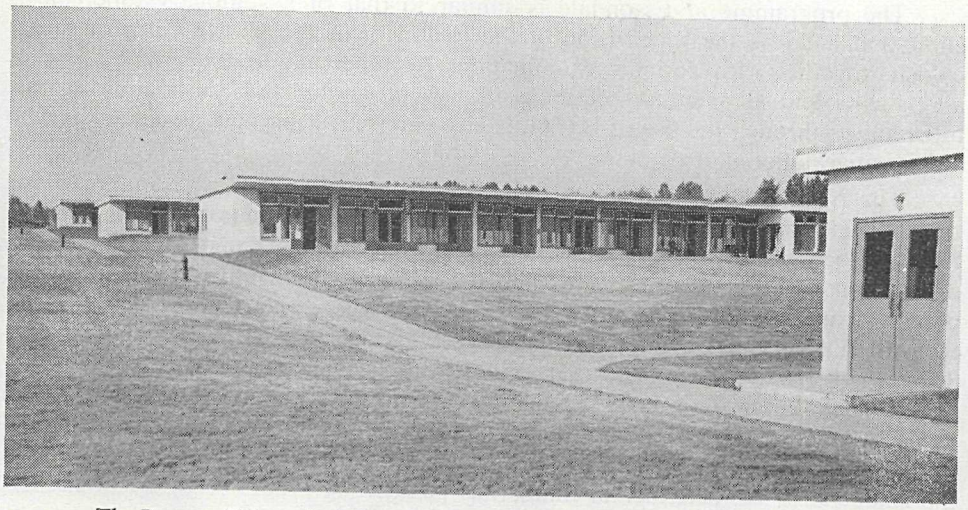
School tuberculin testing has increased considerably. Tuberculin testing in schools is carried out in conjunction with community surveys when they are held, but special school tuberculin testing is also done. During the past year a complete survey of the schools in the Upper Fraser Valley Health Unit was done, including Hope, Chilliwack, and Abbotsford, and, in all, over 12,000 tuberculin tests were given. In the Kootenay region the travelling clinic nurse has carried out tuberculin-testing surveys in the schools of Creston, Nelson, and Kimberley. On Vancouver Island over 8,500 tuberculin tests have been done in schools in Victoria and environs, with an additional 7,000 children having been done in the Central Vancouver Island Health Unit. A programme for the testing of all students in Grades I and VI in the Vancouver schools was begun this fall and almost completed by the end of the year. This will include over 22,000 students.

The response in industry to tuberculin testing has been most gratifying. It is only about a year ago that the employers refused to take the responsibility of having tuberculin tests done on their employees. This position has quite reversed, and so many requests for the tuberculin test have been received from industry that this has become an accepted part of the tuberculosis examination. All industries now being done are having tuberculin tests. All the large department stores and many big industries have made tuberculin testing part of their employment examination.

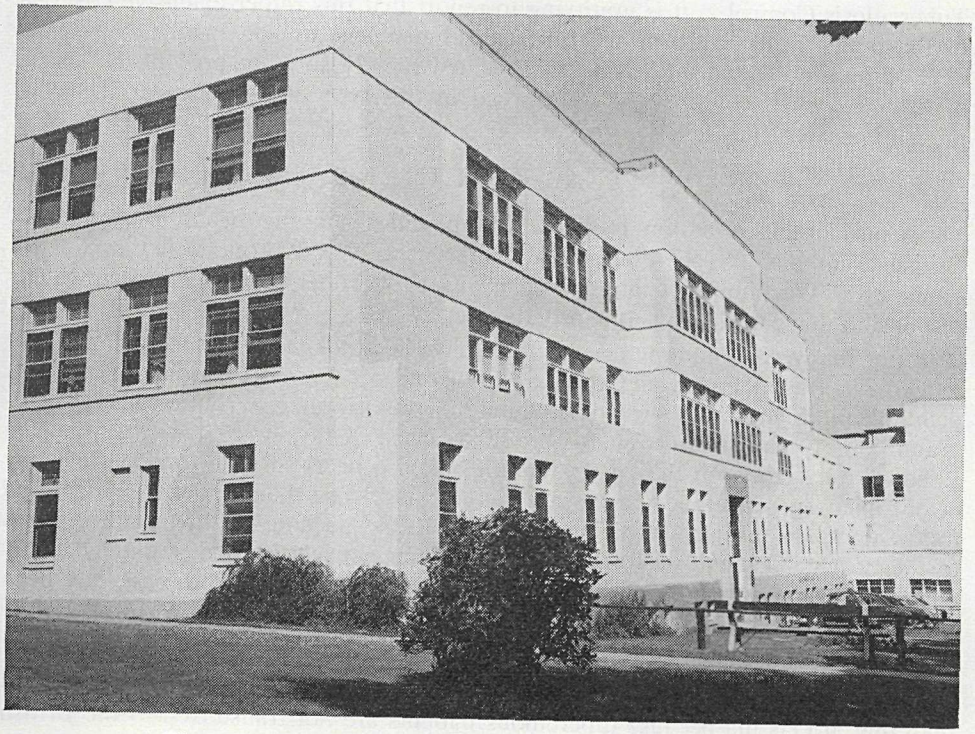
TUBERCULOSIS AND MENTAL ILLNESS

An important aspect of the work of tuberculosis-control is that carried out in the Provincial Mental Hospitals. Tuberculosis poses a great threat and could become a major problem in the mental hospital setting. This Division is happy to be associated with the Mental Health Branch in an energetic programme to control tuberculosis amongst the mentally ill.

Three members of the staff of the Division of Tuberculosis Control are assigned to Essondale to direct and assist in an extensive programme carried on at Essondale —namely, a physician-specialist, a public health nurse, and a clerk. This is made possible through National Health Grants. A similar programme is carried out at Colquitz by the Vancouver Island Chest Centre.



The Pearson Tuberculosis Hospital in Vancouver, location of the self-help unit of the Division of Tuberculosis Control.



The Willow Chest Centre in Vancouver is the major surgery unit of the Division of Tuberculosis Control.

The programme at Essondale is similar to that of a stationary tuberculosis clinic and includes the supervision of the treatment of the known cases of tuberculosis, together with periodic examinations by tuberculin testing and X-rays of all patients and all members of the staff. A programme of vaccination against tuberculosis through the use of B.C.G. is also carried out on patients and staff who are negative tuberculin reactors.

The North Lawn Building at Essondale is a tuberculosis sanatorium for the mentally ill and usually houses about 200 tuberculous patients. All the modern forms of therapy for tuberculosis are used and it is gratifying to note that the results of treatment are good and many patients achieve an inactive status. Several patients from this hospital improved to the extent where is was possible to transfer them to Willow Chest Centre for lung surgery, which was completed successfully. Through the close relationship that exists it has been possible to work effectively with Essondale for the transfer of mental patients from Willow Chest Centre and Pearson Tuberculosis Hospital for short periods of time for treatment of mental illnesses and to return them to the Provincial sanatoria without undue delay when the acute phase of their mental illness has passed.

In the programme of staff and patient supervision at Essondale, over 15,000 X-rays were taken and about 4,000 tuberculin tests were performed. This supervision extends to Woodlands, Valleyview, and Colony Farm, as well as to Essondale itself. In addition, the geriatric hospitals at Vernon (Dellview) and Terrace (Skeenaview) are examined annually by the travelling clinics of the Division of Tuberculosis Control. It is gratifying to report that this rather extensive coverage of the mentally ill has kept the tuberculosis problem well in hand. New cases developing are spotted quickly and segregated rapidly so as to prevent the spread of disease, which could be so widespread in this type of environment if special precautions were not taken.

PENAL INSTITUTIONS

Considerable attention is given to tuberculosis in the penal institutions of British Columbia. As these are mostly adjacent to New Westminster, the Director of the New Westminster Clinic of the Division of Tuberculosis Control is chiefly responsible for carrying out this programme.

For many years routine chest X-rays have been taken on prisoners committed to Oakalla Prison Farm, and this has been one of our most productive sources, yielding our highest case-finding rate in tuberculosis in our routine survey programmes. In the present year over 7,000 chest X-rays were taken at Oakalla Prison Farm. Through this programme it has also been possible to relocate many of our unco-operative and recalcitrant patients and bring them under treatment and follow-up again. Prisoners having tuberculosis and needing treatment are brought to the Provincial sanatoria for the period of their active treatment, although many continue their treatment following return to prison after their disease has been brought under control. Many of these patients undergo chest surgery for their tuberculosis while in sanatorium.

The tuberculosis problem at the British Columbia Penitentiary is quite different than that at Oakalla because tuberculous patients are not transferred to the British Columbia Penitentiary from Oakalla unless their tuberculosis is considered inactive. At the present time there are nineteen inactive cases in the British Columbia Penitentiary under surveillance. Periodically X-ray surveys are carried out at the Penitentiary.

During the past year a tuberculin testing survey with X-raying of positive reactors was carried out at the Haney Correctional Institution for both inmates and staff. This group, too, has been screened in passing through Oakalla so that the tuberculosis problem here is not serious. However, annual tuberculosis surveys will be carried out in the Haney Correctional Institution.

At the end of the year a miniature X-ray machine was installed in Prince George Gaol and is just beginning operation. While the volume will be smaller than at Oakalla, we feel that the screening of the patients there will be very effective in follow-up.

The various prison authorities are keenly aware of the tuberculosis problem in penal institutions and have given the utmost co-operation in carrying out procedures for its control.

NURSING EDUCATION

A continuous programme of nursing education is carried on in the Division of Tuberculosis Control. This course provides a programme not only for student-nurses, but also for in-service training and for postgraduate nurses. During the year a week's programme of classroom teaching is conducted every five weeks for student-nurses from the training-schools on the Lower Mainland. Similar courses are carried out two or three times a year in Victoria for the student-nurses at St. Joseph's Hospital and the Royal Jubilee Hospital, as well as in Kamloops for the student-nurses in the Royal Inland Hospital. This lecture programme is provided by a full-time nursing instructor, who is assisted by many members of the staff of the Division. During the past year 489 student-nurses received this training. For postgraduate students both the wards and clinics of the Division are used by the School of Nursing at the University of British Columbia. Three clinical supervision students spent a total of five months obtaining experience in these facilities. Three public health nurses had a one-week programme of orientation in tuberculosis-control in British Columbia, and sixteen third-year university nursing students also had one-day lectures. In conjunction with the Vancouver Vocational Institute School of Practical Nursing, thirty-six students were given a four-week course of planned instruction and experience on the wards. Besides this, many others, such as staff nurses, social workers, and auxiliary staff, audited the lectures given to student-nurses.

MORBIDITY AND MORTALITY

During 1960 there were fifty-nine deaths in British Columbia from tuberculosis, five more than in 1959. This represents a death rate of 3.7 per 100,000 population, which was an increase from 3.4 per 100,000 in the previous year. This compares with seventy deaths from tuberculosis in 1958, with a rate of 4.5 per 100,000. This is only the second occasion since 1946 when the steady decline in the death rate has been interrupted, the last being 1955. On both occasions the increase was not particularly significant in indicating any changing trends in the favourable results of the treatment programme.

Of the fifty-nine deaths from tuberculosis in 1960, only five were in the native Indian population, as compared with seven deaths in this group in 1959. For Indians this given a death rate of 12.6 per 100,000, as compared with a rate of 3.4 for non-Indians.

There were no deaths in persons under 25 years of age, while in persons 50 years of age and over there were forty-four deaths, and this latter group accounts for almost 75 per cent of all deaths from tuberculosis. This again confirms the fact that the tuberculosis problem has shifted from the younger person to the older age-groups.

There was a decreased incidence of new cases of tuberculosis in 1960, the final figure showing 1,173 new cases discovered in the total population, as compared with 1,200 the previous year. The incidence of new active cases was also lower, with 631 of the cases found being in that category. Of these, 511 were non-Indians and 120 were Indians. This comparesw ith 719 in 1959, of which 138 were Indian. In addition, amongst the known cases of tuberculosis there were 102 cases previously classified as inactive which reactivated during the year, eighty-eight being non-Indian and fourteen Indian.

ACKNOWLEDGMENTS

The fight against tuberculosis has always been waged on a broad front, and its success is due to the participation of many individuals and groups. To all these persons the Division records its appreciation. Thousands of volunteer workers have contributed during the year to the success of the community surveys as canvassers, clerks, and assistants in many capacities. Without them the surveys could not have been maintained on the present basis.

Many agencies, both official and voluntary, played a big part in the tuberculosis-control programme. Within the Health Branch various divisions are involved. The local health services are an integral part of the programme and meet the problem on a day-to-day basis at the grass-roots level. The Division of Vital Statistics compiles and processes all the data collected by this Division and produces volumes of information by which the tuberculosis programme is guided. The Division of Laboratories does a large volume of bacteriology on tuberculous cases and provides a most essential service. The closest co-operation exists and the working arrangements could not be more cordial.

The Indian and Northern Health Services of the Federal Government provide a tuberculosis programme for the Indians of the Province, and with this service we have a common aim in overcoming the tuberculosis problem. Here, again, our relationships are most cordial and a most effective working arrangement exists. The tuberculosis programme carried on by the Indian Health Services has met with great success in the reduction of deaths and in the incidence of new cases.

Amongst the voluntary agencies, special mention should be made of the Canadian Red Cross Society, which supplies us with all the blood, without which our chest surgery would not be possible. The Vancouver Preventorium (Princess Margaret Children's Village) provides the only facilities we have for the treatment of children with tuberculosis and is, therefore, an integral part of the tuberculosis control treatment facilities. The work of the British Columbia Tuberculosis Society has already been mentioned in connection with the community tuberculosis surveys, but its efforts cover other phases of the programme, particularly in the field of education. In this field they make a major contribution.

To all members of the Health Branch and in particular to the staff of the Division of Tuberculosis Control is recorded appreciation for their initiative, unstinting efforts, and loyal support for the furtherance of the objectives of this Division.

REPORT OF THE DIVISION OF VENEREAL DISEASE CONTROL

A. A. LARSEN, DIRECTOR

The total number of cases of venereal disease reported in 1960 showed only minor changes from the numbers notified over the past four years. There were 3,573 cases of gonorrhœa reported this year, compared with an average of 3,507 cases per annum over the period 1956–59. Since 1956 there has been a significant increase in the number of newly acquired cases of syphilis reported. In 1960 sixty-three people were diagnosed as having primary or secondary syphilis, compared with an average of thirty-four cases per annum over the four-year period 1956–59. However, in 1960, 194 cases of latent syphilis were reported, compared with an average of 212 cases per annum for the preceding four years.

Several factors seem to be related to the continued high incidence of gonorrhœa. An increasing number of cases are being reported from some of the northern health units, coincident with the presence there of more construction-workers. Many patients are no longer deterred from promiscuity by painful or long drawn-out treatment and are frequently reinfected several times in one year. We are especially concerned about the high rate of gonorrhœa in native Indian women and the frequency with which white males are reported as contacts. It is felt, too, that the trend toward better reporting of venereal disease is continuing, and that this is helping to keep up the total number of cases.

Most of the cases of heterosexually transmitted early syphilis originated from exposure to prostitutes in Vancouver, and every effort continues to be made to locate and treat these source contacts. Many cases of infectious syphilis reported this year were, however, contracted through homosexual practice. This has presented a very difficult control problem since most homosexual men are very promiscuous and may refuse to reveal the names of their sexual contacts. It is felt, too, that there were a number of such patients who falsely gave the names of females as contacts so as not to reveal their sexual deviation. Every homosexual known to the staff of the Division has been warned of the danger and advised to have frequent blood tests. Several articles have been published in the Canadian Medical Journal, and no opportunity has been lost in acquainting private physicians with this problem.

As yet there is no evidence that penicillin has lost any of its effectiveness in the treatment of either gonorrhœa or syphilis. However, an increasing number of patients are being found to be sensitive to this drug and have to be treated with some alternate medication which is less effective and more expensive.

ADMINISTRATION

Dr. Charles Hunt, Senior Consultant and Acting-Director of the Division, has transferred to another position in the Government service, and Dr. Ainsley S. Atkins has been appointed as Senior Consultant. Miss H. E. Cawston, Superintendent of Nurses, resigned from the service, and her place was taken by Mrs. M. McVeigh, who was formerly Assistant Superintendent of Nurses at the Pearson Tuberculosis Hospital. Again this summer, with the help of a National Health Grant, the Division employed a senior medical student. He supplied holiday relief for the clinical and epidemiological staff and completed a study begun the year before on the effect of topical cortisone in the treatment of non-gonorrhœal urethritis. Another senior student, working under the direction of Dr. D. Ford, Associate Professor, Faculty

of Medicine, University of British Columbia, spent the summer months in the Division studying the incidence of the " T " forms of pleuro-pneumonia-like organisms in clinic patients with non-gonorrhœal urethritis.

PUBLIC CLINICS

Patient attendance for diagnostic and treatment purposes has increased only slightly at the various clinics operated by the Division. However, the number of blood tests taken for United States immigration purposes has increased sharply. In 1959, 2,612 such tests were done. In 1960 the figure was approximately 3,750.

The Division has operated a part-time public clinic in one of the Vancouver City health unit offices near the area where many patients are exposed. In recent years this clinic has shown a marked decrease in attendance, and it was felt that it had outlived its usefulness. This clinic, therefore, has been closed on a trial basis. It was felt that few of the patients going there could not attend the main Vancouver clinic, and that a more efficient and economical operation would result from consolidation.

EPIDEMIOLOGY

The trend toward younger and younger people being named as contacts to venereal diseases, which caused considerable concern a few years ago, seems to have come to at least a temporary halt. This year considerably fewer boys and girls in their teens were reported.

The Metropolitan Health Committee has continued its policy of seconding one of its public health nurses for full-time work in this Division. One of the duties of this nurse is to interview all the young people who are named to the Division as venereal disease cases or contacts, and who are still attending school, with a view to uncovering the underlying social and emotional problems that caused them to act as they did. Only nine such cases were seen in 1960.

In October a meeting was called by the Medical Officer of Health for the City of Vancouver which was attended by representatives from the Division, Vancouver City Police, City Prosecutor's Office, City Licence Inspector's Department, the Liquor Control Board, and the British Columbia Hotel Association to review the problem of prostitution and facilitation as they relate to the spread of venereal disease. While there is no evidence to suggest that organized prostitution is contributing significantly to the incidence of venereal disease, many individuals, through indifference or avarice, are still facilitating contact between infected and healthy persons. Recent information indicates that certain establishments in Vancouver are serving as regular places of meeting and sexual exposure between homosexuals, and active steps are being taken by the authorities concerned to control this situation.

EDUCATION

The educational programme for physicians, medical students, public health nurses, and student-nurses has been continued. The senior nursing students from the Vancouver General Hospital have rotated through the Vancouver clinic on a three-day programme, and lectures have been given at St. Paul's Hospital, the Royal Columbian Hospital in New Westminster, and at the Vancouver Vocational Institute. A number of public health nursing students from the University of British Columbia were given an intensive one week's course covering all phases of venereal disease control, and lectures were given to students in medicine at the University.

The clinic has continued to employ nine newly graduated doctors on a part-time basis to conduct public venereal disease clinics. Appointments as clinic

physicians are limited to one year so that the maximum number of physicians can be accommodated. This policy is now beginning to show definite results. It is our feeling that more private practitioners are willing to care for patients with venereal disease, that better care is being given to these patients, and that the Division is receiving more co-operation in tracing contacts than ever before.

A new film, " Innocent Party," dealing with the problem of venereal disease in teen-age groups has been purchased and is available for distribution.

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REPORT OF THE DIVISION OF LABORATORIES

E. J. BOWMER, DIRECTOR

During 1960 there were some resignations among senior members of the staff. On the resignation of Mr. A. R. Shearer, B.A., Assistant Director since 1956, Miss V. G. Hudson, B.A., who has served with distinction in this Division for twenty-nine years, was promoted to fill the vacancy. This resulted in the successive promotion of two bacteriologists to take charge of the Enteric and the Milk and Water Laboratories.

Table I.—Statistical Report of Examinations and Work Load in 1959 and 1960, Main Laboratory

	Unit[1] Value	1960		1959	
		Tests Performed	Work-load Units	Tests Performed	Work-load Units
Enteric Laboratory—					
Cultures—					
Salmonella-shigella	7	17,114	119,798	13,951	97,657
Pathogenic *E. coli*	10	2,364	23,640	2,001	20,010
Chemistry Laboratory—					
Water—					
Complete analysis	100[2]	82	8,200	66	6,244
Partial analysis	----	37	1,051	----	----
B.O.D.	150[2]	12	1,800	26	1,600
Milk and Water Laboratory—					
Milk and milk products—					
Plate count	4	4,993	19,972	5,274	21,096
Coliform	2	4,513	9,026	4,827	9,654
Phosphatase	3	3,190	9,570	3,489	10,467
Resazurin	1	430	430	437	437
Water—					
Plate count	2	1,463	2,926	1,509	3,018
Coliform	5	12,361	61,805	10,888	54,440
Food poisoning examination	15[2]	55	825	59	295
Miscellaneous Laboratory—					
Animal virulence (diphtheria)	6	2	12	----	----
Cultures—					
C. diphtheriæ	5	6,854	34,270	8,390	41,950
Hæmolytic staph.-strep.	5	6,584	32,920	6,767	33,835
Phage typing	10	----	----	357	3,570
Miscellaneous	5	2,993	14,965	2,857	14,285
Fungi	5	2,197	10,985	1,844	9,220
N. gonorrhœæ	5	9,270	46,350	8,666	43,330
Direct smear—					
N. gonorrhœæ	2	28,045	56,090	27,084	54,168
Vincent's spirillum	2	132	264	169	338
Miscellaneous	2	2,701	5,402	2,440	4,880
Serology Laboratory—					
Agglut. tests—Widal, Paul-Bunnell, Brucella	2[2]	13,616	27,232	16,943	30,209
Anti-streptolysin test	5[2]	1,509	7,545	1,117	2,234
Blood—					
V.D.R.L. (qual.)	1	128,824	128,824	134,639	134,639
V.D.R.L. (quant.)	2	1,526	3,052	1,652	3,304
Complement-fixation	2	8,138	16,276	8,723	17,446
C.S.F.—					
Complement-fixation	2	1,887	3,774	1,923	3,846
Complement-fixation (quant.)	2	24	48	33	66
Cell count	2	145	290	187	374
Protein	2	148	296	201	402
Darkfield—*T. pallidum*	3	397	1,191	417	1,251
Viruses—					
Complement-fixation	4	25	100	63	252
Shipping	2	127	254	----	----
Tuberculosis Laboratory—					
Animal inoculation	10	655	6,550	713	7,130
Anti-microbial sensitivity	25	1,032	25,800	----	----
Atypical mycobacteria	25	223	5,560	----	----
Cultures—*M. tuberculosis*	6	24,635	147,810	26,169	157,014
Direct smears—*M. tuberculosis*	2	12,588	25,176	16,347	32,694
Intestinal parasites	3	4,252	12,756	3,930	11,790
Totals	----	305,143	872,835	314,158	833,145

[1] One D.B.S. unit=10 minutes of work.

[2] Unit values altered on January 1st, 1960.

The total work load, calculated in Dominion Bureau of Statistics units (one unit is equivalent to ten minutes of work by laboratory personnel), for 1960 showed an increase of over 5 per cent compared with 1959, although the actual number of tests performed was slightly less in 1960 than in 1959. This is a trend that has been noted during the past few years; it is due mainly to the increasing demand for "high-unit value" tests. The major increases were in enteric bacteriology, chemical analysis, parasitology, mycology, and special tuberculosis bacteriology. The major decreases were in sanitary bacteriology, serology, and routine tuberculosis bacteriology.

At the request of the Deputy Minister, a survey on laboratory utilization was started in co-operation with the Director of Epidemiology. The object of the study was to review the work load of each section in the Division and to determine whether physicians and health unit officials were utilizing the Division's laboratory facilities economically and efficiently. As a result of the survey on milk samples submitted to the Division, the work load in this programme was curtailed.

Table II.—Statistical Report of Examinations and Work Load during the Year 1960, Branch Laboratories

	Unit[1] Value	Nelson		Victoria	
		Tests Performed	Work-load Units	Tests Performed	Work-load Units
Enteric Laboratory—					
Cultures—					
Salmonella-shigella	7	383	2,681	1,056	7,392
Pathogenic *E. coli*	10	.....	.....	267	2,670
Milk and Water Laboratory—					
Milk and milk products—					
Plate count	4	709	2,836	782	3,128
Coliform	2	529	1,058	782	1,564
Phosphatase	3	333	999	592	1,776
Resazurin	1	182	182	207	207
Water—					
Plate count	2	.....	.....	2,249	4,498
Coliform	5	1,678	8,390	2,249	11,245
Food poisoning examination	15	.....	.....	5	75
Miscellaneous Laboratory—					
Animal virulence (diphtheria)	6	.....	.....	5	30
Cultures—					
C. diphtheriæ	5	428	2,140	556	2,780
Hæmolytic staph.-strep.	5	428	2,140	556	2,780
Miscellaneous	5	385	1,925	20	100
Fungi	5	.....	.....	211	1,055
N. gonorrhœæ	5	.....	.....	379	1,895
Direct smear—					
N. gonorrhœæ	2	256	512	512	1,024
Vincent's spirillum	2	6	12	8	16
Miscellaneous	2	23	46	651	1,302
Serology Laboratory—					
Agglut. tests—Widal, Paul-Bunnell, Brucella	2	641	1,282	376	752
Anti-streptolysin test	5	.....	.....	4	20
Blood—					
V.D.R.L. (qual.)	1	3,833	3,833	14,995	14,995
V.D.R.L. (quant.)	2	20	40	243	486
Complement-fixation	2	.....	.....	1,008	2,016
C.S.F.—					
Complement-fixation	2	.....	.....	326	652
Cell count	2	.....	.....	393	786
Protein	2	1	2	394	788
Darkfield—*T. pallidum*	3	.....	.....	18	54
Tuberculosis Laboratory—					
Animal inoculation	10	.....	.....	19	190
Cultures—*M. tuberculosis*	6	.....	.....	2,060	12,360
Direct smears—*M. tuberculosis*	2	108	216	2,060	4,120
Intestinal parasites	3	80	240	434	1,302
Totals		10,023	28,534	33,417	82,058

[1] One D.B.S. unit=10 minutes of work.

In Table I the total number of tests and the work load in units during 1960 are compared with the figures for 1959. The work loads undertaken at the Division's two branch laboratories, in the Royal Jubilee Hospital, Victoria, B.C., and in the Kootenay Lake General Hospital, Nelson, B.C., in 1960 are reported in Table II.

TESTS FOR THE DIAGNOSIS AND CONTROL OF VENEREAL DISEASES

The demand for standard tests for syphilis (S.T.S.) decreased in 1960 by nearly 5 per cent. The tenth evaluation survey of S.T.S. in which this Division participated was started by the National Laboratory of Hygiene. During 1960, 397 exudates from 198 individuals were examined for *Treponema pallidum* by the darkfield technique. Nineteen (10 per cent) of these patients were found positive, compared with twenty-eight (13 per cent) of the 216 patients examined in 1959.

A total of 319 sera was submitted to the National Laboratory of Hygiene and the Ontario Division of Laboratories for the conduct of the *Treponema pallidum* immobilization (T.P.I.) test, which is the most valuable confirmatory test for syphilis. The results were positive in 100 patients (34 per cent). The comparative study of the S.T.S., the T.P.I. test, and the Reiter Protein Complement-Fixation (R.P.C.F.) test, commenced in 1959 in collaboration with the National Laboratory of Hygiene and the Provincial Division of Venereal Disease Control, was completed. The Chief of Clinical Laboratories of the Laboratory of Hygiene analysed the results, which indicated that the R.P.C.F. test is a valuable screening test in the diagnosis of syphilis.

Demands for direct microscopy and culture in the diagnosis and control of gonorrhœa increased by about 5 per cent. No satisfactory method of transporting specimens for culture has yet been developed for use by out-of-town physicians. The cultural techniques are thus available only to the V.D. clinics in the Greater Vancouver area. Out of 28,000 smears examined, 3,840 were positive (14 per cent). Out of 9,270 cultures investigated, 1,540 were positive (17 per cent).

Other Serological Procedures

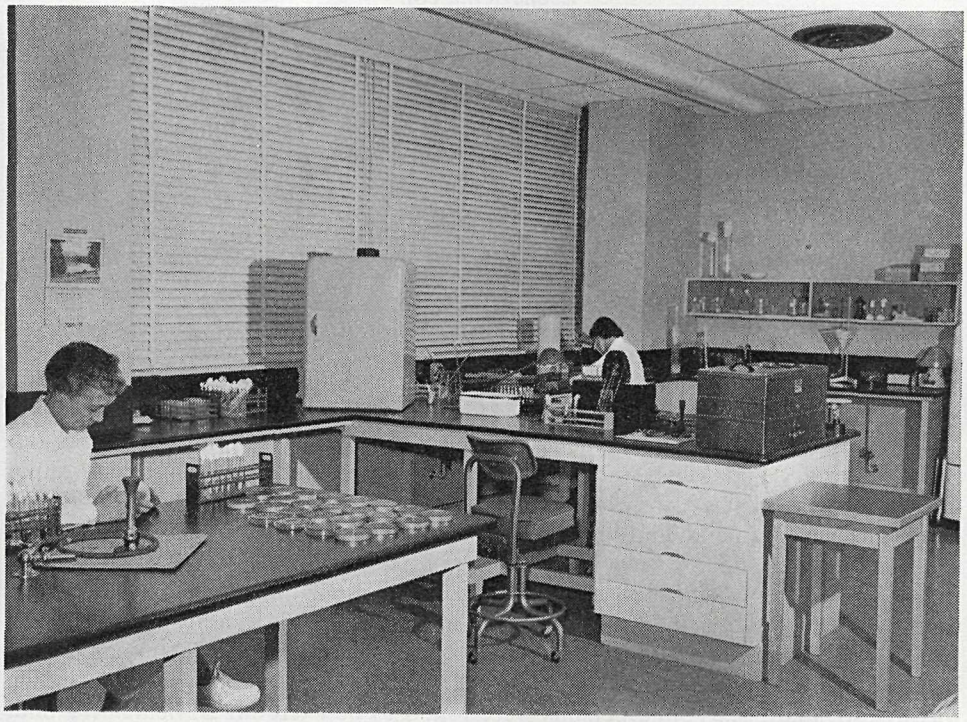
The demand for antistreptolysin O titre estimation for the diagnosis or exclusion of acute rheumatism and other diseases associated with beta-hæmolytic streptococcal infection increased by 45 per cent, from 1,035 in 1959 to 1,509 in 1960. Of the sera examined in 1960, 703 (47 per cent) showed raised serum antibody titres.

In 1960 the conduct of all serological procedures was transferred to the Serology Section, resulting in increased efficiency in the operation of the Division.

TESTS RELATING TO THE DIAGNOSIS AND CONTROL OF TUBERCULOSIS

The number of microscopic examinations of smears for *Mycobacterium tuberculosis* was further reduced in 1960. In 1959, 16,350 such smears were examined, while in 1960 the number decreased to 12,600, of which 282 were positive (2 per cent). The routine laboratory work load in connection with the diagnosis and control of tuberculosis is summarized in Table III. The demand for cultural examination decreased by 5 per cent. The special studies on *M. tuberculosis* continued. Anti-microbial sensitivity tests were performed on over 1,000 strains to assist the Division of Tuberculosis Control in determining the appropriate chemotherapy for patients with tuberculosis. Over 200 strains of anonymous mycobacteria were

investigated by a battery of laboratory tests to distinguish the potentially pathogenic non-photochromogens from the predominantly non-pathogenic skotochromogens. A small number of strains of *M. tuberculosis* from patients who were refractory to treatment with the usual anti-microbial agents were tested for their sensitivity to a new anti-microbial agent, TH 1314, which was undergoing clinical trial in the Division of Tuberculosis Control.



The Division of Laboratories occupies three floors of the Provincial Health Building in Vancouver. At left is Miss V. G. Hudson, appointed Assistant Director of the Division in 1960.

Table III.—Routine Tuberculosis Bacteriology

	1960	1959
Number of direct smears examined microscopically	12,588	16,347
Number of positive smears	282	368
Number of specimens cultured	24,635	26,169
Number of positive cultures	1,562	1,661
Number of guinea-pigs inoculated	655	713
Number of positive guinea-pigs	32	41

ISOLATION AND IDENTIFICATION OF SALMONELLÆ, SHIGELLÆ, AND OTHER ENTERIC BACTERIA

The considerable increase in the demand for stool culture in the diagnosis and control of diarrhœal diseases suggests that their incidence in the community is on the increase, and that physicians and health unit officials are becoming more aware of the value of laboratory confirmation. The first six months of 1960 was

remarkable in that about 40 per cent more stool specimens were received than in the comparable period of 1959. Stool culture is one of the " high-unit value " tests requiring skilled bacteriologists and the expenditure of much media. Work loads and positive results for the four-year period 1957 to 1960, inclusive, are shown in Table IV.

Table IV.—Stool Culture for Salmonellæ, Shigellæ, and Pathogenic Escherichia coli

Year	Salmonella-Shigella				Pathogenic *E. coli*	
	Total Number of Specimens	New Positives			Total Number of Specimens	New Positives
		Salmonella	Shigella	Total		
1957	11,130	243	174	417	100	7
1958	14,574	344	552	896	1,139	143
1959	13,951	458	388	846	2,001	207
1960	17,114	472	1,161	1,633	2,364	199

The numbers of new cases of infection from which salmonellæ, shigellæ, and pathogenic *Escherichia coli* were isolated showed a marked increase in 1960. Several fascinating epidemio-bacteriological studies were made. *Salmonella heidelberg* was the commonest salmonella isolated, with *S. typhi-murium* second. Between February and May a new salmonella serotype with the antigenic formula 4,12:b-1,6 was isolated from twenty-two persons widely scattered in the Fraser Valley, Lower Mainland, and Vancouver Island. As this organism was also isolated in seven other Canadian Provinces, the name proposed for it was *Salmonella canada.* In view of the high incidence of *S. heidelberg* infection, over 200 reports on new cases were analysed and found to reveal many interesting features. A case of typhoid fever was traced to ingestion of storm-water in a drain contaminated by a known chronic typhoid carrier. A classical outbreak of salmonella food poisoning was investigated: sixty-nine persons were found to be excreting *S. heidelberg* and, of these, thirty-six were also excreting *S. thompson.* Bacteriological investigation revealed the presence of both salmonellæ in the suspected food—turkey dressing and vegetable salad.

The most common salmonellæ isolated during 1960 are compared with those isolated in 1959:—

Organism	1960	1959
1. *Salmonella heidelberg*	144	179
2. *Salmonella typhi-murium*	108	139
3. *Salmonella thompson*	106	5
4. *Salmonella paratyphi B*	27	20
5. *Salmonella canada*	22	-----
6. *Salmonella tennessee*	12	8
7. *Salmonella newport*	11	36
8. Other salmonellæ	42	71
Totals	472	458

Shigella sonnei was isolated from 1,095 new cases, while *Shigella flexneri* was was only isolated from sixty-six new cases. Laboratory examinations for pathogenic *E. coli* increased by nearly 20 per cent.

SANITARY BACTERIOLOGY

Examination of Dairy Products

Late in 1960 the American Public Health Association published the eleventh edition of Standard Methods for the Examination of Dairy Products. A review of current laboratory methods and procedures was started, to ensure that the new standard methods were being observed.

The survey on laboratory utilization in the Milk Laboratory indicated that some health authorities were sampling in excess of the requirements of the *Milk Industry Act* and regulations. Curtailment of this excessive sampling resulted in a decrease in work load of about 5 per cent. A total of 468 milk shipments, each containing about five samples, was received by this Division; of these, nine (2 per cent) arrived at temperatures over 10° C., and were therefore unsuitable for examination.

Water Bacteriology

The American Public Health Association published the eleventh edition of Standard Methods for the Examination of Water and Wastewater late in 1960. A review of current laboratory methods and procedures was started to ensure that the new standard methods were being observed. A survey of laboratory utilization in water bacteriology was commenced. The demand for bacteriological examination of water increased by about 15 per cent in 1960 compared with 1959.

Many water samples were shipped by mail and 84 out of 12,361 (0.7 per cent) were more than four days in transit and therefore considered unsuitable for bacteriological examination.

Bacterial Food Poisoning

In 1960 there were fifty-five demands for bacteriological culture of food substances suspected of causing food poisoning, compared with fifty-nine in 1959. Only five samples yielded pathogenic organisms: *Streptococcus viridans* was isolated from oysters which were consumed by thirty people; *Streptococcus pyogenes* was cultured from prawns eaten by two persons; coagulase-positive *Staphylococcus aureus* was isolated from custard slice eaten by one person and from chicken eaten by another individual; and *Salmonella heidelberg* and *Salmonella thompson* were recovered from turkey dressing and vegetable salad when over fifty persons developed acute gastro-enteritis following a wedding breakfast.

OTHER TYPES OF TESTS

Diphtheria

This was the second successive year in which *Corynebacterium diphtheriæ* was not isolated. Only two animal virulence tests were performed on suspicious cultures.

Parasitic Infections

The demand for examinations for intestinal parasites showed a slight increase on previous years. The following parasitic protozoa were identified in fæces specimens: *Giardia lamblia* (116), *Entamœba coli* (116), *Endolimax nana* (31), *Entamœba histolytica* (11), and *Iodamœba butschlii* (2). The following helminthic eggs were identified: *Trichuris trichiura* (19), hookworm (21), *Clonorchis sinensis* (12), *Enterobius vermicularis* (14), *Ascaris lumbricoides* (11), and *Diphyllo-*

bothrium latum (1). The following adult worms were also identified: *Ascaris lumbricoides* (2), *Enterobius vermicularis* (1), and *Tænia saginata* (1). In addition, in 360 specimens out of 1,700 submitted on National Institute of Health swabs or scotch tape, eggs of *Enterobius vermicularis* were identified.

A small outbreak of trichinosis occurred in Vancouver, North Vancouver, and West Vancouver. Seven individuals, all of whom had eaten undercooked pork obtained from one butcher, developed suggestive symptoms. The diagnosis was confirmed by muscle biopsy, by skin test, or by serological tests, or by a combination of methods. Skin test antigen was provided and serological tests were performed by the consultant parasitologist to the Department of National Health and Welfare.

Fungus Infections

The demand for mycological investigations remained at the same high rate as in 1959. The following dermatophytes were isolated and identified: *Trichophyton rubrum* (105), *Microsporon canis* (97), *Trichophyton mentagrophytes* (22), *Epidermophyton floccosum* (12), *Trichophyton discoides* (9), *Trichophyton tonsurans* (4), *Trichophyton megnini* (3), and *Trichophyton violaceum* (1). This is the first report of *Trichophyton megnini* in these laboratories. The patients were recent immigrants from Holland. The patient infected with *T. violaceum* was a recent immigrant from Greece. On 215 occasions *Candida albicans* was isolated and other Candida species were recovered 184 times.

Of the 2,200 specimens received for mycological examination, 30 per cent yielded positive results.

Miscellaneous Tests

The smaller clinical laboratories with no facilities for bacteriology submitted over 200 blood cultures for examination; of these, nine proved positive. The organisms isolated were coagulase-negative *Staphylococcus albus* (3), coagulase-positive *Staphylococcus aureus* (2), *Aerobacter aerogenes* (2), *Salmonella typhi* (1), *Salmonella paratyphi B* (1), and paracolon-like organism (1).

Virus Investigations

A total of twenty-five viral and rickettsial complement-fixation tests, involving seven patients, was performed. The positive findings included one case of mumps and one case of Q fever.

During 1960 specimens from 127 patients were submitted to the Virus Laboratories of the National Laboratory of Hygiene for virus isolation and identification. These included specimens collected at six autopsies. The following entero-viral agents were identified: Poliovirus Type I (33), Poliovirus Type III (9), Coxsackie A9 (1), and Coxsackie B5 (19). Thus a total of 62 viral agents was isolated from 127 patients, an isolation rate of nearly 50 per cent.

In spite of their heavy commitment in the laboratory study of the live attenuated polio vaccine programme, the National Laboratory of Hygiene continued to provide this service for the Province of British Columbia.

Chemical Analyses

In spite of staff changes the work load in the Chemistry Section showed a substantial increase. The tests performed were the chemical analysis of old and new public water-supplies and the estimation of biochemical oxygen demand (B.O.D.) of sewage and other effluents.

BRANCH LABORATORIES

Recommendations were made for the purchase from the Kootenay Lake General Hospital of technical and non-technical assistance for the laboratory technician in the Nelson Branch Laboratory. The Director of the Division made one visit to the laboratory to inspect and advise on laboratory facilities. During his visit he attended the medical staff meeting and discussed with the physicians the services available. The work load at Nelson laboratory decreased by nearly 20 per cent compared with the 1959 work load.

The Director visited the Royal Jubilee Hospital Branch Laboratory twice and discussed problems with the staff. There was a substantial increase of over 20 per cent in the work load at the Victoria Branch Laboratory in 1960 compared with 1959.

GENERAL COMMENTS

Four courses on serological techniques, each lasting one week, were conducted for trainee technicians attending technician training-schools in the Greater Vancouver area. Eight members of the staff participated in instruction at the University of British Columbia in the Faculty of Medicine and in the Departments of Bacteriology and Nursing. The Division presented a display of its activities and of the new aluminum mailing containers introduced in 1960 at the annual meeting of the British Columbia Division of the Canadian Medical Association. In August the Director presented a paper at the annual meeting of the International Northwest Conference on Diseases in Nature Communicable to Man. In November the Director attended the sixteenth annual meeting of the Technical Advisory Committee on Public Health Laboratory Services to the Deputy Minister of National Health, and presented a paper at the annual meeting of the Laboratory Section of the Canadian Public Health Association in Ottawa.

In spite of many changes in the senior staff, the quantity and quality of laboratory work were maintained. The staff are to be congratulated on their rapid readjustment to the resulting administrative changes during 1960.

REGISTRY AND REHABILITATION SERVICES

C. L. HUNT, DIRECTOR

The Registry for Handicapped Children made steady progress during the year 1960. It has added more than 200 new registrations per month, and its case load at this time is approximately 16,500.

During the year a survey was conducted on deaf and hard-of-hearing children over the age of 16, the results of which have not as yet been summarized. It also collaborated with the Division of Preventive Dentistry in a survey of cases with cleft palate and hare-lip.

This Registry has now been in existence for over nine years and has provided valuable information regarding the problems of handicapped children in this Province. Besides providing a measure of the nature and extent of the problems, it has also shown the areas in which those problems were mostly concentrated, and has revealed what facilities were available, or should be made available, for dealing with them.

Since the co-operation of doctors in private practice was sought in acquiring information about their patients, the Registry developed a consultative service in the field of rehabilitation to help the physicians in handling their more difficult problems. Thus the Registry and Rehabilitation Services have become interrelated.

The Children's Registry concerned itself with persons under 21 years of age. It was realized, however, that many of those originally registered, though having passed beyond the age-limit, still required some type of rehabilitation service as adults. Moreover, since a general programme of adult rehabilitation is being developed, it was felt that the services of the Registry should be extended to include handicapped adults, thus automatically taking care of those previously registered as children.

In April of 1960 the Registry was given permission to eliminate its age-limit of 21 years, and has become the " Registry for Handicapped Children and Adults." Registration on a general scale for the adult group has not as yet been requested. However, approximately 200 adult cases have so far been notified, and these are being registered. They consist of cases admitted to the G. F. Strong Rehabilitation Centre, cases over 21 years of age who have contracted poliomyelitis during 1960, and some miscellaneous cases that have been registered by the local health services. Plans are going ahead for registering other adult cases, such as those on social assistance who are receiving medical care and persons receiving treatment from the Canadian Arthritis and Rheumatism Society (British Colmbia Division).

The adult section of the Registry is gradually surveying the cases known to it who were registered as children and who are now over 21 years of age. These cases are being reviewed and up-to-date information is being requested from the local health services.

The Registry, with the assistance of local health services personnel, has also undertaken to do a follow-up study of a vocational nature on cases that have been discharged from the G. F. Strong Rehabilitation Centre during the years 1958 and 1959. The questionnaire has been worked out in collaboration with the G. F. Strong Rehabilitation Centre and is being handled by the local health services.

Staff members of the Registry continue to participate in the activities of various voluntary agencies concerned with handicapped children and adults by serving on committees and on directing boards of these agencies.

During the year the Director of the service spent three months in Britain and Denmark to observe the methods used there in the field of rehabilitation and chronic care. On his return a report was submitted and has been distributed to various interested agencies.

The Registry and Rehabilitation Services, besides registering handicapped persons of all ages, has taken an active part in advising and arranging for the rehabilitation of those considered likely to benefit from this service. Such an arrangement has necessitated the co-ordination of many facilities within the community capable of offering assistance. These include medical rehabilitation services, psychological education, vocational assessment and training, social welfare, and the assistance of the National Employment Service, besides the assistance of many community organizations.

CASEWORK OF THE REHABILITATION SERVICE

An important aspect of the Rehabilitation Service is the individual casework service offered to disabled persons. Referrals come from a variety of sources, including social service agencies, private and public hospitals, private physicians, voluntary agencies, etc. The aim of the programme is to restore the disabled person to the greatest possible degree of independence. The ultimate goal is to assist the referred person to industrial competence and financial independence, a result obtained in nearly two-thirds of the referrals.

After referral, information about the patient's medical, social, and vocational background is studied in order that appropriate further action consistent with the patient's needs may be planned on a logical co-ordinated basis. The Service then arranges for the requisite services and closely follows the patient's progress until a conclusive result is obtained.

Case Load of the Rehabilitation Service, January 1st, 1960, to December 31st, 1960

Cases active at January 1st, 1960	121
Cases deferred at January 1st, 1960	4
Cases accepted, January 1st, 1960, to December 31st, 1960	64
Total	189
Cases closed, January 1st, 1960, to December 31st, 1960	72
Cases active at December 31st, 1960	117
Cases deferred at December 31st, 1960	4
Case load at December 31st, 1960	121

Seventy-two case closures were reported during the year, of which forty-five have been re-established in gainful employment. One case, as a result of services provided, was able to enter the University of British Columbia, and the balance of twenty-six cases were closed without the desired result of industrial independence having been achieved, but an improvement in physical and social competence usually was noted.

Source of Support at Referral

Social Allowance	31½
Private resources	28
Unemployment insurance benefits	12½
Total	72

None of the seventy-two cases was self-supporting at the time of acceptance for service, but at closure the economic status of the group had changed markedly, as shown in the following table:—

Source of Support at Closure

Wages	45
Disabled Persons' Allowance	5
Social Allowance	9
Private resources	13[1]
Total	72

[1] One person who is attending university is closed as rehabilitated, but source of support is private.

Age-grouping of Seventy-two Closed Cases

Under 20 years	8
21–30 years	31
31–40 ,,	11
41–50 ,,	16
51–60 ,,	6
Over 60 years	—
Total	72

Annual Earnings of Cases Closed in Employment

$500.00–$1,000.00	1
1,001.00– 2,000.00	7
2,001.00– 3,000.00	19
Over $3,001.00	8
Self-employed	3
Not reported	7
Total	45

VOCATIONAL REHABILITATION

Rarely is the disabled person encountered who does not envision a useful and productive life, disability notwithstanding. However, it is a fact that disabled persons frequently have not had either the physical ability or the opportunity to develop academic and vocational skills. Others find it necessary to develop new vocational skills. To the majority, rehabilitation is synonymous with productive work and gainful employment. It is for this reason that vocational rehabilitation measures are so vital to the rehabilitation process. Vocational training is an important area of vocational rehabilitation. Special facilities for vocational assessment

have not been extensively developed, but many of the disabled are eligible for admission to normal vocational training-schools.

During the past year nearly 50 per cent of those cases closed in employment had received vocational training through the provisions of Schedule R of the *Canadian Vocational Training Co-ordination Act*. The annual amount of Social Allowance required to support the group prior to acceptance for rehabilitation services was almost $26,000, and for many of this group the cost of support had been an annually recurring expenditure. The total cost of providing vocational training, including fees and maintenance allowance, was almost $15,000, a non-recurring expenditure. The annual income of this group from salaries and wages is about $90,000. Thus, not only was it less expensive to provide vocational training than to maintain the group on Social Allowance, but the need for Social Allowance disappeared and a substantial economic gain was achieved by the group.

LIAISON WITH THE NATIONAL EMPLOYMENT SERVICE

Another important facet in the area of vocational rehabilitation is suitable placement of disabled persons in gainful employment after initial rehabilitation measures have been concluded. Early in 1959 an experimental programme of job placement of disabled persons referred to the Rehabilitation Service was begun with the assistance of the National Employment Service. The National Employment Service seconded a senior special placement officer to the Rehabilitation Service to provide advice and assistance in the job placement of disabled persons, and to act as liaison officer between the Rehabilitation Service and the regional and local offices of the National Employment Service. At the end of the experimental period, the programme was evaluated and was found to be sufficiently effective for it to be continued.

At January 1st, 1960, twenty-four cases had been continued on the placement case load, and during the period to December 31st, 1960, forty-nine new cases were added. A total of forty-one job placements were made during the year, involving thirty-seven persons, four of whom were placed twice.

REHABILITATION SURVEY PROJECTS

A pilot study is being undertaken in the Nanaimo area to determine if some individuals presently in receipt of welfare allowances due mainly to medical reasons might benefit from rehabilitation services and become self-supporting. This study was a co-operative undertaking on the part of the Health Branch and the Department of Social Welfare, using funds from the National Health Grants.

In view of the experimental nature of the study, all procedures are being documented and evaluated in order to determine which might be applied in other areas of the Province.

EDUCATION

In the realm of education, many talks have been given to medical and community groups describing modern concepts of rehabilitation techniques, the purpose to be served, and the aims to be achieved, as well as the part that the community can play in the over-all programme. The interest displayed has been universally gratifying in this relatively new service.

REPORT OF THE ACCOUNTING DIVISION

For Period April 1st, 1959, to March 31st, 1960

J. McDiarmid, Departmental Comptroller

As the title shows, this report of the Accounting Division relates to the fiscal year ended March 31st, 1960, rather than the calendar year ended December 31st, 1960, the period covered by the other sections in this volume.

The functions of the Accounting Division are to control expenditures, process accounts and payrolls for payment, account for revenue, forecast expenditures, and prepare the Departmental estimates of revenue and expenditure in their final form. In addition, the Division is responsible for the inspection and control of expenditures for Departmental cars.

The table shown at the end of the report gives the breakdown of costs by main services, expressed in dollars and as a percentage of the total, comparing the three years 1957/58 to 1959/60, inclusive.

There was a slight increase in the gross expenditure over the previous fiscal year 1958/59. It is interesting to note that the cost of in-patient care continues to decrease, which is largely due to a reduction in patient-days within the tuberculosis institutions. Another important observation is the continued increase in expenditure for local health services, which provides preventive and other services at the community level.

Quarterly inspections of Government motor-vehicles continued to be made throughout the Province by the mechanical inspection staff. No serious accidents occurred throughout the Health Branch, and at no time has an accident occurred due to a mechanical failure. All accidents were referred to the Safety Committee for review. Safe driving methods were continually stressed by the mechanical inspectors.

Service	Gross Cost			Percentage of Gross Cost		
	1957/58	1958/59	1959/60	1957/58	1958/59	1959/60
Division of Tuberculosis Control	$3,078,650	$2,555,389	$2,342,565	40.3	33.8	30.9
Local Health Services	1,999,027	2,144,454	2,417,767	26.2	28.4	31.9
Cancer, arthritis control, rehabilitation, etc.	838,423	857,766	899,090	11.0	11.3	11.9
Research, training, etc.	348,299	526,197	309,430	4.6	7.0	4.1
Poliomyelitis	355,990	391,397	413,249	4.6	5.2	5.5
General administration and consultative services	374,199	369,552	405,688	4.9	4.9	5.3
Division of Laboratories	263,623	342,055	376,785	3.5	4.5	5.0
Division of Vital Statistics	274,957	275,523	312,200	3.6	3.6	4.1
Division of Venereal Disease Control	99,588	97,731	99,145	1.3	1.3	1.3
Totals	$7,632,756	$7,560,064	$7,575,919	100.0	100.0	100.0

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