Tuberculosis Morbidity and Mortality *

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IN discussing the prevalence and loss of life due to tuberculosis one must consider the history of tuberculosis and its treatment during the last fifty or sixty years. During this time many factors influenced both the morbidity and mortality due to tuberculosis.

As this century opened tuberculosis was the world's most destructive disease. It was endemic in the western world and epidemic in the eastern. In the intervening half-century tuberculosis has become changed from a killing to a chronic disease. Tuberculosis is no longer a leading cause of death in the western world. Mortality from tuberculosis is no longer the real yardstick to measure the importance of the problem of the disease or to judge the efficiency of measures for its control. The reduction in loss of life due to tuberculosis has been a great achievement but the chronic nature of the disease still poses a huge financial and social problem. With the dramatic drop in mortality from the disease many are prone to feel that the problem of tuberculosis is approaching solution but it is still the most important infectious disease of man in the western world.

With the discovery of the tubercle bacillus by Koch in 1882 there followed a period of research into the nature of the disease, its treatment, and prevention. Attempts to produce an antiserum failed but out of this work there developed a vaccine known as Baccillus Calmette-Guerin Vaccine which has been shown to raise resistance to tuberculosis in some degree. In 1895 the discovery of X-ray photography led to the development of a practical means of discovery of the disease and of measuring its extent. Koch developed tuberculin as a therapeutic agent but this became instead a diagnostic and epidemiological aid of increasing importance.

In the early twentieth century much was known of the clinical manifestations and pathological characteristics of tuberculosis. However, the theory of the universality of tuberculosis infection had a great effect on medical practice in relation to tuberculosis during the early part of the century. There was little appreciation of the fact that tuberculosis was preventable. Indeed most autopsies showed evidence of tuberculous infection and most adults in cities showed a reaction to the tuberculin test. Most of us can remember a statement that the tuberculin test is of little value because of the fact most adults react to it. The situation to-day is much different. Morbidity has decreased so that the tuberculin test has become of great significance in the diagnosis and control of tuberculosis.

Voluntary agencies were responsible for spreading education about tuberculosis and showing the need for prevention, treatment facilities, and rehabilitation. Their activities have been of significance in reducing the morbidity and mortality from tuberculosis.

Official agencies carried on education about tuberculosis, provided facilities for treatment and the isolation of open cases of the disease. Their

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* Paper given at the Post-Graduate Week in Medicine, March, 1955
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development of case-finding programs including diagnostic clinics, the supervision of contacts, and mass population surveys have led to finding previously unsuspected cases, and to finding cases at an earlier stage when treatment has a greater chance of success. Undoubtedly official agencies not only through their antituberculosis activities but also due to the part they have played in raising the general sanitation of the community have helped reduce the prevalence and deaths from tuberculosis. Certainly in Canada their activities have led to the practical disappearance of bovine tuberculosis. Perhaps we who may be engaged officially in antituberculosis work have ascribed the lessened incidence of tuberculosis and the greatly reduced deaths from this disease as due mainly to our efforts. While official workers have played a great part in this result, we must not lose sight of the fact that other factors have also been working to effect the present day situation in relation to tuberculosis.

The provision of free treatment for tuberculosis is of tremendous help in controlling tuberculosis. The recognition of this fact by governments has enabled recent advances in treatment to be made easily available to all the public. Forcible restraint of incorrigbly careless open cases of tuberculosis is also an aid in its control.

Early sanatorium care consisted of rest alone. While rest is still of paramount importance in the cure of the disease, the tuberculosis hospital to-day has become a place of active treatment. Treatment has been of great importance in reducing the spread of tuberculosis and deaths from it. Surgery developed from about 1915 on, first with artificial pneumothorax and then thoracoplasty. Chemotherapy as it developed increased the possibilities of surgery tremendously. It is said by many that the development of chemotherapy is the most dramatic event in the history of tuberculosis. Chemotherapy in tuberculosis was first tried without success during the time when arsenicals were discovered as a means of treating syphilis. This form of treatment was revived in 1944 with discovery of streptomycin shortly followed by para amino salicylic acid, isonicotinic acid hydraxide, and other drugs. Excisional surgery was made possible in the extent it is used to-day because of the use of antimicrobial drugs. The tuberculosis death rate has been decreasing for the last hundred years, with a more rapid fall during the past twenty years. Resectional surgery and antimicrobial therapy have resulted in a further sharp decrease in the past ten years.

It is only in rare instances that surgery can remove all of the tissues infected with tubercle bacilli. Antimicrobial drugs check the growth of the organisms. It is the defenses of the body itself which must provide the final cure. Many persons saved from death drom tuberculosis will continue to have living tubercle bacilli in their bodies. The forces that have been and are at work have produced more chronic cases of the disease. It must be borne in mind that for some time to come many arrested and inactive cases of tuberculosis must be supervised with the possibility of reactivation of disease always present. We must not relax public health procedures or medical services designed to help control this disease.

It is encouraging to see the reduction in deaths and a lowered incidence from tuberculosis and to feel that we may see this disease reduced to a mini-

mum. We must not feel, however, that the battle against this disease is won. This will take many more years of work and tuberculosis will continue to be a major public expense.

To show mortality and morbidity trends in Canada and Nova Scotia certain statistical tables are presented. Table I shows the tuberculosis mortality in Canada during the past twenty years at certain intervals. The tremendous reduction is apparent from 68.2 per 100,000 of population in 1932 to 12.3 in 1953.

TABLE I

TUBERCULOSIS MORTALITY IN CANADA

Crude Death Rates per 100,000 population (all forms) for certain years 1932 to 1953

1932	68.2
1937	60.4
1942	51.4
1947	42.4
1952	17.1
1953	12.3

(In the U.S.A. the mortality rate from tuberculosis in 1953 was 12.6 per 100,000 of population).

We in Nova Scotia are interested in where we stand with other provinces in Canada in respect to tuberculosis mortability. This is shown in Table 2. It can be seen that in 1953, the rate for all of Canada was 12.3 and the provinces varied from a high of 29.0 to a low of 6.4. Certainly tuberculosis is a greater problem in some parts of Canada than in others.

TABLE 2

TUBERCULOSIS MORTALITY IN CANADA

Crude Death Rates per 100,000 population (all forms) for 1953 in the various provinces.

Canada	12.3
Newfoundland	29.0
Quebec	19.8
New Brunswick	12.9
Prince Edward Island	12.3
British Columbia	11.9
Manitoba	11.0
Nova Scotia	10.9
Saskatchewan	10.1
Alberta	6.8
Ontario	6.4

Table 3 shows tuberculosis mortality in Nova Scotia. In 1908 reasonably reliable statistics were available for the first time. In that year the mortality rate from tuberculosis was 208 per 100,000 of population. I would call your

attention to the rapid drop from 75. in 1938 to 28.5 in 1949. There has been a continued decline in the years since 1949.

TABLE 3

TUBERCULOSIS MORTALITY IN NOVA SCOTIA
(All Forms)

Year	Number of Deaths	Mortality Rate per 100,000 population
1908		208.
1911 to 1915 (average)		178.
1921	702	134.
1930	548	106.
1938	415	75.
1949	184	28.5
1950	176	27.7
1951	126	19.6
1952	94	14.4
1953	72	10.9

In the year 1951, the tuberculosis mortality rate in Nova Scotia was 19.6. The cancer mortality rate for the same year was 129.5; that of diseases of the circulatory system was 302.5; violent and accidental deaths had a rate of 60.2. In the same year that tuberculosis killed 129 persons, there were 319 stillbirths and 594 babies died in their first year of life. These figures give a comparative picture of importance to-day of tuberculosis as a killing disease.

The decline in deaths during the past five years is not paralleled by similar decrease in the number of new cases of tuberculosis. There has not been too much difference in the years 1949 to 1953 inclusive, as shown in Table 4. Morbidity figures have not been accurate or complete. Because of this no attempt is made to quote available figures prior to this period.

TABLE 4

NEW CASES OF TUBERCULOSIS (All Forms) DISCOVERED IN NOVA SCOTIA 1949-1953

1949	1127
1950	1204
1951	889
1952	1052
1953	1144

In Canada in 1953 there were 10,545 new cases of tuberculosis discovered.

During recent years there has been an intensification of case-finding programs which have brought to light many previously unsuspected cases of tuberculosis. The resulting statistics of new cases of tuberculosis discovered make it difficult to compare recent years with those of former years. From new cases of tuberculosis reported by official agencies one cannot get an accurate picture of tuberculosis morbidity in the past. However, there is evidence that does show a decrease in morbidity. Tuberculin Test surveys show a lessening percentage of the population which reacts to tuberculin. Mass chest

TABLE 5

Members of Newly Discovered Cases of Tuberculosis and Reactivations Discovered in Nova Scotia during the year ending March 31, 1954

Health Division	Prim. TB Act.	Pulmonary Tuberculosis									Non-Pulmonary Tuberculosis			Pleurisy with effusion	Other TB of Resp. Tract	Total	Reactivations
		Minimal			Mod.	Advanced			Far Advanced								
		Act.	Arr.	Inact.	Act.	Arr.	Inact.	Act.	Arr.	Inact.	Act.	Arr.	Inact.				
Western	7	22	4	74	22	4	25	11	0	1	3	2	0	7	1	183	17
Cape Breton North	20	29	34	29	30	7	4	14	0	1	17	1	2	5	1	194	23
Cape Breton South	39	40	9	60	37	1	18	15	0	1	11	0	0	17	4	252	30
Fundy	10	4	1	14	16	2	9	14	0	4	4	1	2	3	1	85	14
Northumberland	6	20	5	61	16	2	13	14	0	2	8	0	0	4	1	152	12
Lunenburg-Queens	0	8	2	15	10	3	4	13	0	1	1	0	0	12	0	69	9
Cobequid	5	3	1	4	3	0	4	3	0	0	3	0	0	4	0	30	6
Atlantic	1	6	1	23	8	2	14	3	3	5	0	0	0	0	0	66	10
City of Halifax*	15	32	13	40	41	1	2	18	0	0	9	1	1	5	0	182	17
	103	164	70	320	183	22	83	105	3	15	56	5	5	57	8	1213	138

*City of Halifax figures are for the calendar year of 1953.

X-ray surveys of the population are revealing fewer new cases of tuberculosis. In 1949 a survey of 13,426 in a Nova Scotia Health Division resulted in the finding of 41 new active cases of disease, while a survey of 14,389 persons in the same communities in 1953 resulted in the finding of only 4 new active cases of pulmonary tuberculosis.

A detailed summary of new cases of tuberculosis discovered by the Department of Public Health for the year ending March 31, 1954, is given in Table 5. This shows that the incidence of tuberculosis is definitely higher in the western counties of Digby, Yarmouth and Shelburne, in the Cape Breton counties of Cape Breton, Inverness, and Richmond, and in Pictou, Antigonish, and Guysborough Counties.

The number and percentage of new cases of active tuberculosis and reactivations is shown in Table 6 for the year ending March 31, 1954. It is interesting to note that about 17% were reactivations, and that the percentage in the far advanced stage is about 13%.

TABLE 6

Numbers of Newly Discovered Cases of Active Tuberculosis and Reactivations discovered in Nova Scotia during the year ending March 31, 1954.

Diagnosis	Number	Percentage
Primary	103	12.7%
Minimal	164	20.2%
Moderately Advanced	183	22.6%
Far Advanced	105	13.0%
Non-Pulmonary	56	6.8%
Pleurisy with Effusion	57	7.0%
Other Tuberculosis of the Respiratory Tract	8	0.9%
Reactivations	138	17.0%
	814	100.2%

(Figures from City of Halifax for calendar year 1953 are included).

Perhaps a better idea of the total problem of tuberculosis can be obtained from an examination of Table 7, which shows the cases of tuberculosis listed in tuberculosis registers in the various Health Divisions and the City of Halifax in Nova Scotia. As of December 31, 1954, there were 1193 active cases in such registers and 9271 inactive cases. These figures provide a tremendous contrast to the position of tuberculosis as a cause of death.

To further show what type of disease is occurring and is being treated in our tuberculosis hospitals certain information is presented in Table 8, about two thirds of the cases admitted to tuberculosis hospitals include the primary, minimal, and moderate cases of tuberculosis. In Table 9, further information is presented in respect to tuberculosis hospital admissions. A significantly greater number of males were admitted for treatment. It is interesting to note that females were the larger group admitted in the age group 15 to 29 years, but that from the age of 30 years and thereafter, males form the largest group of admissions. These facts mirror the age and sex incidence of tuberculosis to-day.

TABLE 7

Total Number of Cases of Tuberculosis in Tuberculosis Register as of December 31, 1954.

Health Division	Active		Inactive	Total
	In Hospital	At Home		
Cape Breton North	176	33	2107	2,316
Cape Breton South	152	34	2151	2,360
Northumberland	101	82	398	605
Cobequid	56	36	601	693
Fundy	79	13	782	874
Western	116	68	1038	1,222
Lunenburg-Queens	66	61	830	957
Atlantic	15	2	72	89
City of Halifax	71	32	1292	1,488
	832	361	9271	10,604

TABLE 8

Admissions to Tuberculosis Hospitals in Nova Scotia during 1953 according to Type of Disease and Sex.

Diagnosis	Males	Females	Total	Percentage
Primary	19	16	35	3.6%
Minimal	61	101	162	16.8
Moderately Advanced	219	203	422	44.
Far Advanced	205	93	298	31.
Other Pulmonary	2	1	3	
Non-Pulmonary	2	4	6	
Pleurisy with Effusion	11	7	18	1.9
Other Tuberculosis of the Respiratory Tract	5	0	5	
Unspecified Pulmonary	2	9	11	
	526	434	960	

TABLE 9

Admissions to Tuberculosis Hospitals in Nova Scotia in 1953 according to age and sex.

Age in years	Males	Females	Total	Percentage
0-14	27	27	54	5.6%
15-29	120	218	338	35.2
30-44	193	132	325	34.
45-59	99	33	132	13.7
60-89	51	16	67	7.0
Not Stated	36	8	44	4.4
	526	434	960	100.

In addition to being still a prevalent disease, tuberculosis is costly. In 1953 there were 1,200 beds for the treatment of the disease in tuberculosis

hospitals in Nova Scotia. The daily average occupancy rate was 922. The tota cost of tuberculosis treatment for the Province of Nova Scotia was $2,372,359.4 for year ending March 31, 1954.

Summary

It is well known that there has been a marked reduction in deaths due t tuberculosis in most of the western world. In other parts of the world there ar many areas where it still takes a heavy toll of life. While we do believe tha there has been a lessened incidence of the disease in our own countries recen morbidity figures do not show a drop in new cases discovered which compare with the dramatic fall in the death rate. Tuberculosis is more of a chroni disease and less of a killing disease. Because of the lengthening span of lif and the greater number of persons recovering from the disease or becomin arrested cases we have a problem of tuberculosis in the older age group whic must be recognized. Many factors have played a part and will continue t influence mortality and morbidity of tuberculosis.

Despite our advances we are still faced with a lack of knowledge concernin many of the factors which influence the course of tuberculosis infection in th human body and its immunological response.

If, in this country, we develop a population which shows little reaction t tuberculin and thus has had, we presume, little tuberculosis infection, what par ticular problems are in store for those of us who are concerned with controllin the morbidity and mortality from this disease.

POLICY OF THE NOVA SCOTIA DEPARTMENT OF PUBLIC HEALTH IN RESPECT TO PROVISION OF ANTIMICROBIAL DRUGS FREE-OF-CHARGE FOR THE TREATMENT OF TUBERCULOSIS OUTSIDE OF HOSPITAL

It has been felt advisable to revise this policy in order to more effectively deal with the problems of treatment of cases of tuberculosis who are not patients in tuberculosis hospitals. The policy is designed to provide antimicrobial drugs to patients free-of-charge who do not require hospital care, and who are under adequate medical supervision.

As a guide to treatment of these cases, certain recommendations were drawn up. These appear later in this article. It is desired that the policy and the recommendations for treatment will ensure that cases of tuberculosis are not treated outside of hospital when hospital treatment is clearly indicated.

A list of names and addresses of the Divisional Medical Health Officers of the Department of Public Health is included, as well as that of the Director of Tuberculosis Control for the City of Halifax. Antimocrobial drugs may be obtained from their offices for patients who meet the conditions as laid down in the following outline of policy.

1. Applications for these drugs must be made to and approved by the Divisional Medical Health Officer of the area in which the patient resides or in the case of residents of the City of Halifax by the Director of Tuberculosis Control.
2. A supply of antimicrobial drugs will be kept in each Divisional Office, and in the case of the City of Halifax at the Halifax Tuberculosis Hospital. Drugs will be distributed from these places.
3. The responsibility for the administration of these antimicrobial drugs must be accepted by the attending physician.
3. No antimicrobial drugs will be provided by the Department of Public Health for a patient with pulmonary tuberculosis who has not had recommended treatment in a Tuberculosis Hospital. This does not apply to certain patients being treated for pulmonary tuberculosis in County Homes and County Hospitals which have been approved by the Department of Public Health for this purpose.
5. Before approving an application for free antimicrobial drugs, it must be ascertained:
   (a) that there has been a complete assessment of the case before treatment is begun; this assessment is to include a tuberculin test; a chest x-ray, and an examination of sputum for tubercle bacilli;
   (b) that the case does not require hospital care;
   (c) that the patient will receive satisfactory supervision of treatment and that reactions in the patient to the antimicrobial drugs will be guarded against;
6. The recommendations for treatment and management of cases of tuberculosis outside of hospital given in the following section is intended as a guide to determine whether or not satisfactory care is

being provided the patient. Reasonable variation from these recommendations is permissible as conditions warrant.

TREATMENT OF TUBERCULOSIS OUTSIDE HOSPITAL WITH ANTIMICROBIAL DRUGS

Recommendations with respect to the treatment of the following:

1. Pulmonary tuberculosis, (including primary).
2. Genito-urinary tuberculosis.
3. Osseous tuberculosis.
4. Other forms of tuberculosis, e.g., glandular tuberculosis and tuberculous peritonitis.
5. Tuberculous meningitis.

Pulmonary Tuberculosis, including primary—An acceptable regimen for the out-of-hospital treatment of pulmonary tuberculosis should consist of the following:

(a) bed rest treatment.
(b) streptomycin 1.0 gm. twice weekly (or less depending on age and weight in the case of children).
(c) P.A.S., 12.0 gm. daily (or less depending on age and weight in the case of children). In adults less than 5 gm. of P.A.S. daily is ineffective in preventing drug resistance of tubercle bacilli.
(d) Isoniazid 3-5 mg. per kilogram of body weight.
(e) Streptomycin, P.A.S. and Isoniazid should not be given singly, but any combination of two of them should be used.
(f) Chest films every three months.
(g) Consultation with appropriate specialists regarding adjuvant therapy (e.g. pneumoperitoneum or surgery), to be done after each X-ray.
(h) Admission to an appropriate tuberculosis institution for specialized investigation such as bronchoscopic examinations, planigraphic studies, and bronchograms as the need arises.

Genito-Urinary Tuberculosis—An acceptable regimen for the out-of-the hospital treatment of genito-urinary tuberculosis should consist of the following:—

(a) Bed rest, and antimocrobial therapy as above
(b) Required consultation with appropriate specialists to determine the necessity for surgery; and especially in the case of isoniazid, to assess the necessity for ureteral dilations (usually every 3 months).

Osseous Tuberculosis—An acceptable regimen for the out-of-hospital treatment of osseous tuberculosis should consist of the following:—

(a) modified or complete bed rest, depending on circumstances, together with antimicrobial therapy as outlined above.
(b) plaster-of-paris immobilization as required.
(c) relatively frequent consultation with orthopedic specialists in connection with the necessity for surgery, (e.g. excision of joints, spine fusion, etc.) usually at intervals of three months.

(d) every case of bone or joint tuberculosis should have three 24-hour specimens of urine examined by smear and culture for tubercle bacilli because twenty per cent of such cases also have genito-urinary tuberculosis.

Other Forms of Tuberculosis, e.g. glandular tuberculosis and tuberculous peritonitis—An acceptable regimen for the out-of-hospital treatment for other forms of tuberculosis, e.g., glandular tuberculosis and tuberculous peritonitis should consist of the following:—

(a) all cases of tuberculous peritonitis should be treated in hospital in the initial phase of the disease.
(b) modified bed rest and antimicrobial therapy as outlined above.
(c) in the case of glandular tuberculosis, frequent surgical consultation to determine the necessity for surgery.
(d) in the case of tuberculous peritonitis, frequent examinations to decide on the necessity of abdominal paracentesis.

Tuberculosis Meningitis—all cases or suspected cases should be immediately admitted to a tuberculosis hospital.

Halifax City—Dr. C. J. W. Beckwith, Superintendent, Halifax Tuberculosis Hospital, Halifax, N. S.

Cape Breton North—Dr. D. G. McCurdy, D.P.H., Div. Medical Health Officer, Box 322, Sydney, N. S.

Cape Breton South—Dr. N. F. Macneill, D.P.H., Div. Medical Health Officer, Box 322, Sydney, N. S.

Halifax County—Dr. J. R. Cameron, D.P.H., Div. Medical Health Officer, 12 Queen Street, Dartmouth, N. S.

Fundy Division (Annapolis, Kings and Hants Counties)—Dr. G. M. Smith, D.P.H., Div. Medical Health Officer, Box 860, Windsor, N. S.

Western Division (Shelburne, Yarmouth and Digby Counties)—Dr. V. K. Rideout, D.P.H., Div. Medical Health Officer, 253 Main Street, Yarmouth, N. S.

Lunenburg-Queens Division—Dr. W. I. Bent, D.P.H., Div. Medical Health Officer, Box 230, Bridgewater, N. S.

Cobequid Division (Cumberland and Colchester Counties)—Dr. K. R. O'Regan, D.P.H., Div. Medical Health Officer, Box 40, Truro, N. S.

Northumberland Division (Pictou, Antigonish and Guysborough Counties)—Dr. J. J. Stanton, D.P.H., Div. Medical Health Officer, Box 170, Pictou, N. S.

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Medical Records, from the Librarian's Point of View

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IT is obvious that a subject which comprises one's profession cannot be dealt with even superficially in a five-minute period. However, medical records have been discussed from many angles in the past and again to-night, so I am glad to limit my remarks to the assigned time.

Doctor J. J. Rourke, a hospital consultant in New Rochelle, New York, writing in the May issue of "Hospital Management", talks about three phases in the evolution of medical records:

Phase 1—No records.

Phase 2—The era in which the blanks in the medical records were filled in so that the librarian could not say that the records were incomplete.

Phase 3—As Doctor Rourke calls it, "The New Era". According to this writer, the New Era began with the formation of the Joint Commission on Accreditation.

These phases may be compared to the stages in the progress of the medical record librarian's profession. *Phase* 1 was the period of medical record clerks who filed records of a sort in a medical record office. *Phase* 2 was the period in which the standards laid down by the American College of Surgeons created the need for trained workers in the medical record department. This period saw the beginning of schools, the registration of experienced workers, and the study by personnel working in medical record departments so that eventually they might become registered. This period might be termed a time of trial for some librarians, for in many hospitals the librarian was thought of as a disciplinarian or as a policewoman. This idea may still be rather prevalent and is a wrong concept that should be corrected. We have been taught and we teach that the librarian is delegated her responsibilities by the administrator, that is, to carry out the duties and responsibilities arising from the functions of the medical record department. "To secure", "to preserve," and "to use" medical records are old and familiar terms. These are the functions contained in the statement of Clause IV of the Minimum Standard for Medical Record Librarians.

In securing the medical record, the medical section has proved to be the part of the record which has given many librarians great difficulty and from which the idea of the policewoman or disciplinarian arose. But let us examine the problem. It was the American College of Surgeons that laid down Clause IV. This was a medical group who set the rules. The rules were given to the individual hospital to implement, and the medical record librarian fell heir to probably the most difficult part of the programme. The point which some physicians seem to have lost was that this requirement for complete and accurate medical records was one demanded by an eminent medical association. In some instances personalities have been so involved that one would think the medical record librarian of a particular hospital had decided the content of a complete medical record, the proper diagnostic terms, what was required

on insurance forms and on other documents with which the physician may have felt he has been plagued.

This has not been the case in every situation by any means. Many physicians in hospital staffs all over the country have recognized the value of complete and accurate medical records as a benefit in the care of their patients, as protection in the event of legal action, and as a tool in their continuing education and teaching function. Further, where the former situation exists, let us not appear to put the blame solely on the physician. Personal qualities of tact, diplomacy, and all the others which in any worker help to smooth a path, plus a real ability to organize her work have assisted many librarians to develop a medical record department that is efficient, harmonious, and accorded the respect shown to other departments of the hospital. In the situation where relationships between members of the medical staff and the medical record department have been poor, a domineering personality may have been part of the difficulty. Sometimes inadequate knowledge or insufficient backing, or possibly a combination of the two, has been the cause of this thorniness.

In any case, Doctor Rourke feels that we have now entered the third phase of medical records or, as he calls it, "The New Era", which began, according to him with the formation of the Joint Commission on Accreditation. The Commission accepted, in the main, the standards laid down by the American College of Surgeons. Here again, let us note that four of the five member associations of the Joint Commission are medical groups which have, to quote Doctor Rourke, "poured in new vim, vigor, dollars, and prestige" to support the accreditation programme. The emphasis which members of the Joint Commission have placed upon the quality of the record, with their insistence upon a medical record committee and a tissue committee as essential committees of the medical staff, and the inclusion of responsibility for medical records in the by-laws of the medical staff, have surely increased the individual physician's awareness of his obligation in the preparation of medical records. At the same time, it is acknowledged that every effort should be made to conserve the physician's time.

Applying the new era to the status of the medical record librarian, it is our hope that the opening of new schools in Canada, the continued excellent training in the established schools, and the opportunity afforded by the extension course to others, will make available more trained personnel capable of offering assistance in the review of records, in assembling statistics, in the preparation of series for study and research projects, and in other ways, all of which should improve patient care.

What the new era holds for librarians is difficult to foresee. Mr. Charles Berry, of the Hospital Administraton faculty, University of St. Louis. writing in the July issue of "Hospital Progress", submits that medical record librarians may be asked to judge the quality of the record to some degree, as well as quantitatively analysing it. Doctor Rourke writes, "The medical record librarian, in my opinion, should play a major role in the tissue and record committees. . . .Doctors time spent in adding up numbers, in figuring percentages, in classifying charts, is a waste of a precious commodity." The Committee on the Approval of Hospitals for Training of Internes in Canada, a

committee of The Canadian Medical Association, presented a new Basis of Approval at the recent conjoint meeting. This new basis cites certain standards for internship. Clinical records have received attention from the committee, one of the points reading as follows: "It is the responsibility of the medical record librarian to work closely with the interne committee, chiefs of services, and other staff members to ensure that records are complete and submitted promptly for filing and indexing so that they may be readily available for future reference." Take note again, this is the Medical Association of Canada giving direction to the librarian.

It would seem then, that medical records are going to receive continued emphasis in the hospital and medical worlds. Accreditation, legislation, medical education and, by no means last, the focus of the public eye on hospital and medical affairs, are factors contributing to this emphasis. I think we can assure the medical profession and the administrators of the hospitals that better medical records continue to be our goal. We hope we shall receive continued and renewed co-operation in these efforts.

Medical Records

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TO many of those who read this article will come memories of their interne and resident days, when it seemed there was always an Everest of medical records or "charts" awaiting completion. But whoever heard of an Association of Medical Record Librarians???? The poor female in the Records Department is frequently thought of as a unpleasant, though apparently necessary part of the hospital routine. . . .like the drill in the dentist's office. She, however, believe it or not, is really a human being, a pathetic mixture of a person who is supposed to have the patience of a Job, the diplomacy of a Gladwyn Jebb, the persistence of a Churchill, the personality of a Dale Carnegie, the positive thinking of a Norman Vincent Beale and the agility of a Tarzan.

This group had its inception in the Province of Ontario in 1935 and from this beginning the country-wide organization, The Canadian Association of Medical Record Librarians, has evolved.

In 1935 the Annual Meeting was held in Halifax, the first time the Association had ever met east of Montreal. Since this was to be the first visit to Nova Scotia for non-Maritime "conventioneers", a typically Nova Scotian programme of events was planned, stopping only at a special performance of the Highland Games and the compulsory wearing of Scottish dress!

Social activities included, among other things, a nautical excursion of the outer reaches of Halifax Harbour and the piping in to the Installation Dinner to the skirl of the bagpipes, played by a Nova Scotian in native tartan, also the award of the certificate of "The Order of Good Time" to all non-Nova Scotians.

From an educational point of view the Convention was also a success. In Halifax there are many leaders in the specialized fields of medicine and their co-operation was found to be most helpful in the arrangement of this section of the programme. The Convention Committee and delegates alike are most grateful to these busy specialists for sparing time from their schedules to prepare and present their most interesting and edifying material.

One of the items of the agenda was a Panel Discussion on Medical Records. Panel members included representatives of the fields of Hospital Administration, Medicine, Law, Nursing and Medical Records. Particular interest was shown in a paper presented by Miss Doris McPherson, R.R.L. of The Canadian Hospital Association, dealing with the three phases in the evolution of medical records. (This paper is the subject of another article in this issue).

During the Business Meeting it was announced that the Association has been accepted as an affiliate of The Canadian Medical Association and received as an Associate of the Canadian Hospital Association. This news was welcomed by the members as a very happy twenty-first anniversary present.

The Association was well represented by fifty-three delegates, the furthest west coming from New Westminster, British Columbia, and the furthest north from Parry Sound, Ontario. Only the Provinces of Newfoundland, Manitoba, Saskatchewan and Alberta had no members present.

The three days of the Convention were fully taken up with morning, afternoon and evening sessions, the attendance throughout being high, never falling below 99 per cent, a mighty tribute to the high interest of the delegates in their work.

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The Polio Gamble*

Lin Root.

POLIOMYELITIS has been discussed in medical literature since ancient times. The name stems from the Greek word *polio* ("gray") and *myelos* ("marrow"), to indicate an inflammation of the gray matter of the spine. Since it has sometimes involved paralysis and the outbreaks were largely confined to young children, it was commonly called "infantile paralysis."

But paralysis is the accident of polio—the uncommon manifestation of a common disease. Indeed, four out of five of us have had polio without knowing it and developed natural immunity. When one considers that the polio virus enters through the nose or mouth and leaves by way of the stools, it is easy to understand how the disease can be widely transmitted. Usually the symptoms are no worse than those of a mild cold.

In very rare cases, the virus attacks nerve cells, destroying them and short-circuiting the muscles dependent upon them, causing them to wither in paralysis. If the virus travels upward toward the brain, it produces bulbar polio, paralyzing the respiratory and attendant muscles; if it remains in the spinal cord, the limbs become paralyzed. No one knows why the virus occasionally turns crippler, but we do know that this happens most often in countries where sanitary standards are high. In lands where sanitary standards are low, there is very little paralytic polio, probably because of a high degree of natural immunity.

In the United States, paralytic polio has struck twenty people out of a hundred thousand in an average year recently—a 1-to-5,000 chance. In 1953, there were 35,968 cases. Actually, its incidence is quite low in comparison with afflictions such as cancer, heart disease, and tuberculosis. Until recently polio was not considered a major public-health problem.

But statistics become insignificant when one thinks of the individuals: the little girl down the street locked into a steel brace; or the young man one read about in the newspapers who was fighting for life in an iron lung. Above all, the image of President Franklin D. Roosevelt dramatized the disease to every American.

The Fight Begins

Almost all that has been accomplished in the care and treatment of patients and almost all that has been discovered about the scientific basis of the disease is the work of the National Foundation for Infantile Paralysis.

The Foundation was started in 1938 by President Roosevelt, following a suggestion by the medical writer Paul de Kruif. Roosevelt's former law partner, Basil O'Connor, took over the administrative and fund-raising functions, while Mr. de Kruif, formerly a bacteriologist at the University of Michigan,

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became secretary of the General Advisory Committee in charge of scientific developments.

Before the Foundation was established, there was no organized assistance for polio victims. But when O'Connor, who was devoted to Roosevelt,threw himself into the fight, it became a great cause. He drew the battle lines from coast to coast, picked the best people in all departments for his staff, and set about making every American a volunteer in his army.

He was determined, resourceful, and dedicated. As a highly successful lawyer, he was accustomed to making his case and pushing it through. The structural strength of the organization has been largely due to his own personal qualities.

The Medication Front

There was little scientific knowledge of the disease in 1938, but there was a wide awareness of its tragic character. The President was a gallant, inspiring symbol of the triumphant human spirit, and the public responded with warmth and generosity to support the Foundation. Contributions since 1938 have amounted to more than $300 million. About eighty million people contributed to the March of Dimes last year.

By 1939, the first local chapter was formed in Coshocton, Ohio. Chapters were to multiply until they covered every county in the United States and numbered more than three thousand. During the last seventeen years, local chapters have spent more than $200 million on people paralyzed with polio, paying doctors' bills, providing iron lungs, wheel chairs, braces, and hospital care. For an iron lung the average cost is two thousand dollars, and service costs for some respiratory cases range as high as fourteen thousand dollars for a single year. So it was that, though the March of Dimes brought in more millions every year, expenses grew even faster, and the pressure to dramatize the need and intensify the public response kept pace.

The Research Front.

Through the years, scientific investigation was supported and encouraged, but the results of research remained isolated bits that could not support the weight of solid hope. Polio virus had not been found in the blood of a crippled victim. Presumably it travelled a direct route along nerve fibers, destroying them as it produced paralysis.

It could be grown only on certain animal nerve tissue. If such diseased tissue is injected into the human body, it inflames the brain and spinal cord, causing encephalomyelitis, a far more general hazard than paralytic polio.

In 1941, differences in policy developed within the Foundation. They were resolved by the departure of Mr. de Kruif and a number of distinguished scientists, including Doctor Robert R. Williams, discoverer of thiamine (vitamin B-1), Doctor Charles Glen King, now Director of the Nutrition Foundation, and Doctor T. Douglas Spies, Professor of Nutrition at Northwestern Medical School. All resigned without making public statements.

In 1949, Doctor John F. Enders and Doctor Thomas H. Weller, both of Harvard and the Children's Medical Centre in Boston, and Doctor Frederick Robbins of Western Reserve University, made a formidable advance. They discovered the way to grow the virus on non-nervous tissues in test tubes. Doctor Enders and his two associates shared a Nobel Prize in 1954 for this discovery. Now that polio virus could be grown in quantity on tissues that were safe to work with, the way leading to a vaccine was opened up. Also in the late 1940's, another major problem was tackled by the Foundation. There were a bewildering number of different strains of polio virus. It seemed that every time a researcher isolated a strain from a polio victim, it turned out to have slightly different characteristics from the others.

The Virus Laboratories of four universities were enlisted in the attack on this puzzle. By 1951 a hundred strains from all over the world had been tested. It was found that they fell into three basic types. The cost of this vital information was more than a million dollars and three years of intensive research by an army of dedicated and mostly anonymous scientists.

Of the three types, Type 1 was by far the most dangerous, causing about eighty per cent of all paralytic polio. But any vaccine would obviously have to work against all three, because each type gives rise to its own antibodies, which will not protect against infection by either of the other two.

Gamma Globulin

These findings had opened rich possibilities. Virologists all over the country applied for grants to follow one of the many problems that now seemed capable of solution. From 1949 onward, the pieces were no longer isolated but fitted together in a fairly orderly pattern of cumulative progress.

It still was not definitely known whether antibodies in the blood could protect against the virus, since it was thought to live its whole life in nerve tissue. Gamma globulin, the blood fraction that performed an important function during wartime, had been found to contain a high concentration of antibodies. It was hoped that polio antibodies were among them. If so, its injection into the blood would show whether antibodies, passively introduced, would provide any immunity against the polio virus.

This was only a chance, but by now there was intense eagerness for tests on human beings. The long-prayed-for vaccine lay somewhere ahead.

Within the Foundation as well as outside in commercial laboratories, two schools of thought on vaccine had already developed: the attenuated live-virus vaccine against the dead, or inactivated-virus, vaccine. And no one yet knew whether vaccine introduced into the blood would protect by providing antibodies. But mass inoculations with gamma globulin might give some immediate temporary protection even though it could not stimulate natural antibody production.

Human field trials were set up during polio seasons in 1951 and 1952. A total of fifty-four thousand children were given doses of gamma globulin.

The early results were encouraging. Contracts were made with pharma-

ceutical houses for big production of gamma globulin in 1953. The Foundation had planned to spend $5.5 million but was so elated that it raised the figure to $11 million, part of which was to be spent on equipment for separating the gamma globulin fraction from blood. This sizable sum was to be spent through June 30, 1954. The public responded to the dramatic idea of large-scale inoculations by increasing its contributions from $38 million in 1951 to $45 million in 1952, and to $56 million in 1953.

A million doses were distributed, but since there were 46 million youngsters between one and nineteen, the demand far exceeded the supply. The summer of 1953 saw several noisy and excited demonstrations by mothers clamoring to have their children inoculated. In September, 1953, a committee of polio experts appointed by the World Health Organization, including Doctor Thomas Francis, Jr., Professor of Epidemiology at the University of Michigan, condemned the wide-spread indiscriminate administration of gamma globulin. This position was supported later by Professor Pierre Lepine of the Pasteur Institute, who declared that gamma globulin applied on a mass basis against poliomyelitis was a wasteful method.

A summing up of the experiment was made by a committee of seventeen polio experts who met in closed sessions at the Public Health Service's communicable-disease centre in Atlanta in January, 1954 They concluded that gamma globulin had failed to produce demonstratively beneficial results. Even the mild claims that had been set forth for gamma globulin were put in doubt by the committee. Interestingly enough, its members included an author of the project, Doctor William McDowell Hammond of the University of Pittsburgh. About 185,000 children in twenty-three areas had been inoculated.

Although the results were disappointing, they added another bit to the scientific knowledge of the disease: Antibodies as given would provide a few weeks' protection if you could catch the children before the onset of the disease. That knowledge cost the Foundation about $18 million in all.

Horstmann and Bodian.

Even before the gamma globulin results were announced, answers to the virus antibody question were found by two investigators working independently on Foundation grants. Doctor Dorothy M. Horstmann of Yale and Doctor David Bodian of Johns Hopkins found the virus circulating in the blood before polio damage was evident. The clue had been given by Doctor Ender's findings that virus could grow on tissue that was not nerve tissue.

Reasoning from this, Doctors Horstmann and Bodian fed virus to monkeys and began to sample the blood almost immediately. Soon the virus showed up in the blood, although the animals seemed perfectly well. This stage corresponded to the no-worse-than-a-mild-cold stage of polio infection in the human being. At this time there were no antibodies in the blood. After a short period, the paralytic symptoms made their appearance. At this stage, the virus disappeared from the blood and in its place came the antibodies. Apparently the antibodies destroyed the virus in the blood, but by this time some of the virus had travelled to the nerve tissue, where the antibodies had a hard

time getting at them. Since the onset of the disease was unmarked by symptoms, it was obviously impossible to know when to administer gamma globulin which at best had a short-term immunization effect.

At last the whole picture of paralytic polio fell into a classic immunization or vaccine pattern. If the blood could be stimulated to manufacture antibodies right at the start, any virus could be destroyed before reaching the central nervous system. This also explained the wide-spread protection under primitive living conditions, where from the very outset babies were exposed to viruses and their blood produced antibodies to protect them. In more sanitary countries there was less exposure, and many years might pass before a person came into contact with the virus. The incidence of paralytic polio is rising among young adults: The older one gets, the harder the disease seems to strike.

By this time the Foundation was determined to go all out for a vaccine as soon as possible. Basil O'Connor had given years of his life to the work. He was identified with the suffering and the hope of polio victims. All his efforts were now bent on finding an effective vaccine while he still headed the organization.

With certain changes, the Foundation's committee on types of virus now became a committee on immunization—to study the possibilities of finding a polio victim. One of its members, Doctor Howard A. Howe, Adjunct Professor of Epidemiology at the Johns Hopkins School of Hygiene and Public Health, had already developed a vaccine against all three types of virus by June, 1951. The vaccine was the result of extensive studies over a period of nearly ten years on monkeys and chimpanzees. Doctor Howe had inactivated live virus with formalin and tested it on six Baltimore children with "favourable results." However, he felt that extensive laboratory work was still necessary and that many changes should be made in the vaccine before large-scale testing.

One of the many virologists working on vaccine problems under grants from the Foundation was Doctor Jonas E. Salk, head of the Virus Research Laboratory in the University of Pittsburgh's School of Medicine. Early in 1953, Doctor Salk reported on a vaccine that he had tested on children and adults with satisfactory results. Although he too warned that further experiments would be required, his vaccine appeared to be the realization of the promise the Foundation had made often and enthusiastically. The immunization committee, however, was cautious. Its eleven members thought the time was not ripe. Their most serious criticism of the vaccine was that Type 1 of the polio virus was represented by the "Mahoney strain", perhaps the most virulent of all strains included in that type. Even though the virus was supposed to be killed—inactivated by formalin, a solution of formaldehyde, so that the vaccine would contain only dead virus—the idea of introducing the Mahoney strain into the human body seemed dangerous to the immunization committee. Inactivation by formalin had been tested many times, and the results never had shown consistent success.

A "solution" of virus in formalin is not a true solution, in which every part is like every other part. It is instead a suspension of infinitesimal particles. In a suspension, which is not uniform throughout, the rate of inactivation is not steady or predictable. Previous researchers had provided evidence on this point. But Doctor Salk felt that no matter how irregular the inactivation might be, the vaccine would be safe if the formalin was "cooked" with the virus until no more virus could be disclosed by test and the solution was then "cooked" for a certain number of hours longer. He cited his own experiments to support this view.

Bypassing the Committee.

However, the immunization committee could come to no agreement. There was a strong feeling that more research was necessary, and that less virulent strains of Type 1 should be tried as substitutes for Mahoney.

Many believed that the proper approach should be similar to the approach on the typing problem, since the development of a vaccine presented many of the same factors: Set up a group to work out a careful plan of procedure and find answers to the questions that remained unanswered.

But Mr. O'Connor believed that the whole process could be speeded up. Research scientists tend to be slow and cautious in their pronouncements. Many had felt the annual promise of relief just around the corner was premature, that the Foundation should not promise more than it was sure to fulfill. There was at that time, they felt, no certainty about how soon a workable vaccine would be developed. That it would be developed was not in question. But they refused to set a time chart for it, since there were still many variables and unknowns.

It was March 26, 1953, that Doctor Salk, addressing a special meeting In the Waldorf-Astoria Hotel, New York, called by the Foundation, first reported that his vaccine had been successful in tests on ninety children. The next morning a technical report by Doctor Salk and his associates on the tests appeared in the Journal of the American Medical Association stating their conclusion with traditional caution:

"Because of the great importance of safety factors in studies of this kind, it must be remembered that considerable time is required for the preparation and study of each new batch of experimental vaccine before human inoculations can be considered.

"It is this consideration, above all else, that imposes a limitation on the speed with which this work can be extended. . . ." The implication was that another year and more likely two or three years might be needed before the vaccine could be made available with safety for general use.

But to its surprise and chagrin, the immunization committee found that it was no longer being consulted. A new vaccine committee was appointed in late May, 1953. Of its seven members, three were administrators and four

were scientists who had made their reputation in fields other than polio research.

The "Sense of Urgency".

In the summer of 1953, plans for field trials of the Salk vaccine began to take shape and the Federal government took its first official part in the programme. The Foundation asked the Public Health Service for the loan of Doctor Joseph A. Bell, an epidemiologist of great experience who had done much work in mass vaccinations. He was given a leave of absence and in September, 1953, he moved over to the Foundation.

Doctor Bell at once set up rigorous standards. The first thing he insisted on was that the vaccine should be checked by the pharmaceutical houses, the Public Health Service's Laboratory of Biologics Control, and Doctor Salk's laboratory. This was to make sure that it was both safe and effective. Furthermore, the testing would provide the Laboratory of Biologics Control with enough experience to license the new vaccine, if it proved to be effective, without the whole new testing routine.

As Doctor Bell proceeded to make plans for the field trials, many points of dissension arose. Some of the rigid standards he set up for pre-inoculation tests would have meant a much more elaborate study on smaller groups—one that would have taken more time but yielded more conclusive results. Doctor Bell's relationship with the Foundation was ended, and he was replaced by Doctor Salk. However, several of Doctor Bell's recommendations, including triple testing, were incorporated in the programme.

On October 9, 1953, Doctor Salk reported on a series of tests on 637 people at a conference of the American Academy of Paediatrics in Miami: "All that should be inferred now is that studies are progressing satisfactorily. There have been no set-backs nor anything but revelations that shed more light on the course ahead. . . . (We) have selected a road, with many lanes, that seems long indeed. Our problem is to select not only the fast lane but the one that is safest and most certain." At the same meeting Doctor Salk intimated that the vaccine was advanced enough to justify mass testing within the next few months, but cautioned that a "vaccine for general use is not yet here." The Foundation announced that it planned organized large-scale testing, and that it planned to get the study under way early in 1954.

Three days later, on October 12, Doctor Hart E. Van Riper, Medical Director of the Foundation, advised patience. Testifying before a Congressional committee that a false impression that the polio problem was solved had been created, he said: "Polio is not conquered. When it will be remains a question." He regretted what he called "premature publicity" on the Salk vaccine.

Despite such misgivings in some quarters, plans for the field trial now began to accelerate. Doctor Salk had been largely responsible for the $1,125,000 grant from the Foundation to finance the Pittsburgh studies. He was working around the clock toward the field trials. It was obvious that the Foundation was backing Doctor Salk to the hilt.

As one member of the immunization committee told me: "O'Connor was right to by-pass the immunization committee. If he wanted to get on with a specific job, it was much better to get an administrative committee. After all, research scientists are apt to consider a great many peripheral questions. O'Connor is bent on saving lives, and he feels that if this can be done it is better to begin operations even at a slight risk than to wait until you get the perfect product. We would have preferred to get a substitute for Mahoney strain, but that would have meant delay. People have been hunting for a Type 1 that would be as good as the Mahoney but not so virulent. We didn't want to get into this immediately, to push forward to a goal. We wanted to explore the questionable areas and have other laboratories working along the same line. I suppose we ought to be grateful to Jones. I knew for myself that I simply could not work under the kind of pressure. On the other hand, I can understand the push when you are concerned always with paralytic victims and I can see why O'Connor felt such a sense of urgency."

Doctor Milzer's Warning.

On November 10, 1953, Doctor Milzer of Michael Reese Hospital in Chicago reported on attempts to produce vaccine in strict accordance with directions published by Doctor Salk:

"For reasons not apparent to us we were not successful in consistently completely inactivating the virus with formalin, residual infectivity being manifest both in tissue-culture test and monkey inoculation."

He also warned: "Before undertaking a field study to evaluate a poliomyelitis vaccine, we feel that it would be advisable to proceed cautiously in order to be certain that there are no ill effects and that no risks are taken, for we must avoid the tragic consequences that have accompanied poliomyelitis vaccine research in the past."

In answer to this, Doctor Van Riper of the Foundation made a statement to the press: "Failure of some scientists to reproduce Doctor Salk's results for making a safe polio vaccine is due to the fact that they have not followed his exact methods." He went on to defend the procedure. Doctor Milzer replied in turn: "I did not say Salk's vaccine was not safe. Absolutely not. . . . we have never had his vaccine to test and we've never even seen it. All we did was to follow his recipe and the cake did not come out right for reasons not apparent to us."

Doctor Salk made a statement at this time saying that his work on the safety of the vaccine "had been confirmed by independent investigators in other laboratories." He further stated that as a result of stringent safety tests applied before use on human beings, "We can state flatly that the vaccine, as prepared by us, is devoid of any infective virus and that no human being has been, or ever will, in any field trials, be inoculated with any material that has the remotest suspicion attached to it."

On November 12, 1953, Doctor Salk said in a talk delivered before the Ninth Annual Conference on Women's Activities of the National Foundation

for Infantile Paralysis at the Waldorf-Astoria: "I give every possible assurance I can, and that medical science can, that the anti-polio vaccine to be used will be safe. I will be personally responsible for the vaccine."

At the Association of State and Territorial Health Officers' annual meeting in Washington in November, 1953, Foundation representatives outlined plans for the proposed field trials and asked for co-operation. That same month, the Foundation had a meeting in New York with representatives from ten major manufacturers of pharmaceuticals and biologicals to discuss production of the vaccine.

With the new year came the 1953 March of Dimes. On New Year's Day Mr. O'Connor announced in a nation-wide broadcast from New Orleans that Pittsburgh would start field-test inoculations during that month. He said that the development of the vaccine had brought the fight against polio to the "verge of victory."

"This will be followed in February by mass field trials, covering every state in the nation, making these trials the largest controlled field tests in all medical history," said O'Connor. His time schedule was not accurate. At best, the vaccine could not be ready before March. He called for $75 million for polio-prevention work in 1954, including $26.5 million for gamma globulin and the field trials. The total response was $55 million, which made an "emergency" appeal necessary later on. The field trials cost $7.5 million.

On March 11, 1954, Doctor Albert B. Sabin, Research Professor of Paediatrics at the University of Cincinnati, said: "We are not at the end of the road but only at the beginning. Let us not confuse justifiable optimism with achievement." He pointed out that he saw no grave danger in the vaccinations but in the lack of "standardized methods of assay," and added, "If it (mass inoculation) turns out good, we won't know how to duplicate it. If it turns out bad, we won't know why."

As the field-trial date drew closer, more uncertainty developed in the proposed test areas.

In April, one of twelve Michigan counties scheduled to participate withdrew. Doctor Howard A. Rusk, however, writing in the New York Times, asserted that "the only things found have been some questionable pathological changes in the brains of some of the monkeys. In no instance have the animals become ill or evidenced any symptoms of polio." He added that all suspect batches had been discarded anyway. He also quoted Doctor Thomas M. Rivers of the Rockefeller Institute and Chairman of the Foundation's Vaccine Advisory Committee to the effect that vaccine was even safer than smallpox vaccine.

The executive committee of the University of Michigan Medical School urged public-health authorities to participate in the programme and pressure was brought on the Michigan State Medical Society to rescind its disapproval of the vaccine. The Society had protested vigorously on the ground that it had not received assurances on a number of questions, including a guarantee of the safety of the vaccine. In fact, it delayed until the trials were almost at hand before reluctantly consenting to go along with them.

The Government Rule.

In general the state departments of health felt committed to the programme because the U. S. Public Health Service was now taking part in it. This agency, a branch of the Department of Health, Education, and Welfare, is headed by Surgeon General Leonard A. Scheele. It has many responsibilities, including advising "the several States on matters relating to the preservation and improvement of the public health" and issuing information to that end. One of its arms, the National Institutes of Health, comprises seven divisions, including the Microbiological Institute, under which was the Laboratory of Biologics Control. This had the technical responsibility of evaluating all biologic products such as the Salk vaccine. (However, on June 1, 1955, the Surgeon General named a permanent committee of government and private scientists to take over responsibility for testing the Salk vaccine, and the Laboratory of Biologics Control moved out from under the Microbiological Institute to become the Division of Biologics Standards with a new director.)

Doctor William G. Workman, chief of the Laboratory, has been a career officer in Public Health Service since 1930. The Laboratory has been small, understaffed, and poor, but it is proud of the caliber of the scientists who have served it and cherished its reputation. The 1955 appropriation for the Laboratory was $327,000.

On this budget the Laboratory staff inspects manufacturing establishments, performs tests in their laboratories, examines manufacturers' records of processing and testing (the famous protocols), and confers with appropriate representatives in industry and science. On the basis of the Laboratory's technical evaluations, the Surgeon General recommends that the Secretary issue licenses. Licensing regulations are general in nature and give little real authority to the Public Health Service over production methods. A license may be suspended or revoked only when the Surgeon General has reasonable grounds to believe that there has been failure to comply with the standards.

Vaccine production was started early in 1954, to be ready for the field trials that were scheduled for March of that year. The vaccine was manufactured by private concerns under contract to the Foundation according to specifications furnished by the Foundation. These specifications were drafted by the Foundation between December, 1953, and February, 1954, with the advice of the Public Health Service and on the basis of information supplied by Doctor Salk about his own laboratory experience. These "minimal requirements" were dispatched to the commercial manufacturers. An arrangement was made for triple testing of each lot of the experimental vaccine before the Foundation accepted it.

As each batch of vaccine was finished, the manufacturer withdrew three samples, sending one to his own laboratory, one to Doctor Salk, and one to the U. S. Laboratory of Biologics Control. Thus all samples would be tested separately so that the results of one test would have no influence on another. In March, 1954, tests conducted on tissue culture and monkeys had been concluded.

Live virus was detected in four of the first six supposedly inactivated lots of vaccine. One of the most disturbing features was the complete lack of agreement in the checking system itself. For instance, two of the first six lots tested negative in the pharmaceutical laboratories and in Doctor Salk's laboratory but failed the safety test in the U. S. Laboratory. Two others passed in U. S. Laboratory and in Doctor Salk's laboratory but failed in the manufacturers' test. As other batches arrived, the inconsistency continued. Among these early lots eleven samplings in all were found to contain live virus, but only two of these checked positive in all three laboratories.

The personal guarantee that Doctor Salk had made at the Waldorf-Astoria about the vaccine produced in his own laboratory did not necessarily hold good, it appeared, for the vaccine produced elsewhere. Even at this early date the question arose whether the sampling was representative of the whole batch even though the batches were of relatively small size. (Field-trial batches were of 120 and 150 liters, whereas subsequent liters run from three hundred to five hundred liters, some of the larger companies making batches up to twelve hundred liters.)

The Foundation representatives, Doctor Salk, and the manufacturers were called in for a series of meetings with Public Health Service officials. The start of the field trials was put off for four weeks in order to allow time for a complete review, and for further testing and studying of the nature of the vaccine. Doctor Salk's experience in inoculating children had been entirely on vaccine prepared in his own laboratory. He was not requested to conclude inoculation studies on some 7,500 children with the commercially produced vaccine. In April, 1954, all the interested parties reconvened.

By this time the vaccine was checking negative—both Parke, Davis and Eli Lilly had produced twelve negative batches in a row. The other companies had also produced negative batches, but it was decided to use the vaccine from the two largest producers only, "in order to reduce variability from multiple manufacturers."

Just then a startling result turned up. In a long series of thirty-one batches from Lilly, thirty samplings ran consistently negative, but near the end of the line one ran positive—live virus.

A new set of "minimum requirements" was worked out by the Public Health Service in May, 1954, against the day when the produce might be licensed. These were to be the requirements for commercial manufacture. The document was prepared with the advice and co-operation of the manufacturers and Doctor Salk. After it was drawn up, Doctor Salk notified the National Institute of Health that he was well pleased with the minimum requirements.

Getting Ready for Production.

Although the results of the field trials in the spring and summer of 1954 were not to be known until the evaluation had been completed some time in 1955, it was apparent to the interested parties that they had gone off without serious mishap. The vaccine manufacturers therefore began to make prepar-

ations for conversion to large scale production in August, 1954. In order to encourage the manufacturers to stay in production after the field trials, the Foundation placed orders for purchase of twenty seven million cubic centimeters of vaccine at a cost of $9 million.

Now presumably was the time when the Federal health authorities might have been expected to foresee the problems that would arise in distribution for a mass inoculation programme in the following spring and to take official steps to see that it was properly carried out. Mrs. Hobby, the Cabinet officer ultimately responsible, has stated that "No one could have foreseen the public demand for the vaccine." And yet with the same knowledge that was then available to Mrs. Hobby, her opposite number in Canada, Minister of Health and Welfare Paul Martin, was already taking steps to prepare a national co-ordination of the Canadian inoculation programme.

At least one person in Mrs. Hobby's own department actually proposed that the United States take similar steps. To Doctor Martha M. Eliot, Chief of the Children's Bureau of the Social Security Administration, the scope of the coming emergency was clear. In late September, 1954, Doctor Van Riper, the Foundation's Medical Director, came to see Doctor Eliot and informed her of the Foundation's purchase of $9 million of vaccine for the mass inoculations to take place in the spring.

"I thought that was wonderful," Doctor Eliot has said, "but it was very clear to me that as soon as the Foundation started, other children—both younger and older—would want to get the vaccine too at their local Health Departments. Doctor Van Riper and I talked about it and agreed that somehow the state health departments should be able to have the vaccine when the Foundation began its shots or soon after." About a month later she discussed the problem at a meeting of a committee of state and territorial health officers, and in early March she drew up a proposal for submission through channels to Mrs. Hobby. It would have required a Federal grant in aid of almost $35 million (roughly what present plans envisage) and would have provided for distribution throughout the states.

Doctor Eliot felt that since the whole thing had been developed with money given by the people, the people were entitled to the results if they were satisfactory. Mrs. Hobby, however, thought it would be better to wait until the announcement of the Francis Report.

The Foundation meanwhile was proceeding apace with its own programme. It asked Doctor Thomas Francis, Jr., noted epidemiologist at the University of Michigan and a former professor of Doctor Salk's, to evaluate the study.

The field trials were completed by the end of the summer of 1954, and then the colossal work of decoding and classifying about a billion items of information began. After the results were broken down, it was left to Doctor Francis and his team of experts to figure out what the statistics meant.

The Foundation, eager to get the results in time to give them general application before the 1955 polio season started, kept urging the necessity of

speed. Doctor Francis promised to have the preliminary report by April. It was a staggering job and refutes any of the talk that the results were deliberately held up in order to coincide with the anniversary of President Roosevelt's death. It was, of course, no news to the Foundation that April 12 was an anniversary. But any date in mid-April would have been considered a memorial ceremony.

The Big Day.

On April 12, more than five hundred invited guests gathered in Ann Arbor at the invitation of the University of Michigan and the Foundation to hear Doctor Francis read the success story of the Salk vaccine. Some three hundred scientists and assorted dignitaries, plus more than two hundred radio, TV, and newspaper reporters, packed Rackham Hall under the glare of kleig lights set up for TV and newsreel cameras.

Mr. Arthur L. Brandon, Public Relations Officer of the University, described the meeting as "an instance of modern science and modern communications coming together."

The reading was scheduled for 10.15, and at nine o'clock the reporters were still waiting for their advance material—many counting the minutes before an early deadline. At 9.17 messengers appeared bearing copy, and some hundred and fifty newsmen swept toward them in a tidal wave. The messengers backed off and started pitching the handouts into the crowd.

This was no time to read fine print. The reporters rushed for the phones to transmit the highlights of the release: "It works. . . . .The vaccine is eighty to ninety per cent effective. . . . It is safe, potent, and effective."

The National Broadcasting Company had promised not to release the news for fifty minutes in an agreement with the press, but Dave Garroway, claiming the story was too important to sit on, broke the agreement.

The word travelled fast. Polio, the crippler, was out for the count. In the streets people grinned happily at each other. Victims of polio wept.

After the reporters in Ann Arbor had filed their stories and had a chance to examine the material, they learned that the vaccine was actually only sixty to seventy per cent effective against Type 1 virus, which is by far the most common cause of paralytic polio.

William L. Laurence, veteran science reporter of The New York Times, declared, "I've never seen a report of this importance more calculated to mislead the people. The Polio Foundation should have given us a better chance to prepare and write a story of this kind."

"We don't like being put in the position of hungry dogs at a garbage pail," declared Jack Geiger of International New Service.

Pierre Fraley of the Philadelphia Bulletin suggested that a story of such magnitude and complexity could well have been given an hour or two in advance to newsmen. "You could have locked them in a room if they wanted to read it in advance, if preserving security was that imperative," he declared.

"After all, even Doctor Francis would have refused to make his study had he been given, say, only two weeks to produce an accurate analysis of the figures."

The meeting opened, and at 10.20 Doctor Francis began his report. With dignified detachment and deliberation in the midst of all the clamor and glare, he discussed the results of the field trials for one hour and forty minutes. Scientists followed him intently; medical men tried; the uninitiated were left far behind. But one fact stood out clear and incontrovertible. A vaccinated child had two and a half times as much chance to escape paralytic polio as a child who had received a dummy injection. When Doctor Francis sat down and Doctor Salk stood up, the audience rose to give the discoverer of the vaccine a thunderous ovation.

When the meeting broke up there was such confusion among the health officers—especially when it was learned that all state and territorial officers had not even been invited—that the Public Health Service was forced to call a meeting for the following Thursday. The problem that faced all these public officials was staggering. They realized that all parents would be eager to get vaccine for their children, but none of the officers had any idea how much vaccine they would receive, or when, or to which groups it would first be allotted.

The Decision.

Through the pandemonium of April 12, twelve of the country's most noted virologists, including Doctor Salk, made their way to the door and hurried down the street to a nearby hotel. Each had received a telegram several days before, inviting him to meet with Doctor Workman of the Laboratory of Biologists Control to determine whether the vaccine should be licensed. On their decision hung the fate of the Foundation's projected mass inoculation programme.

All shades of opinion were represented at the meeting, from the man who thought, "If you can prevent a few thousand deaths, shouldn't you push ahead even if there is a slight risk?" to the one who thought, "Polio—one chance in five thousand. Why not wait at least until we can get rid of the Mahoney strain before we give this to every child in the country?"

The twelve virologists sat around with the thick seventy-page report before them, knowing that in Washington the TV cameras were set up and Mrs. Hobby and Doctor Scheele were just waiting for the go-ahead from them. One doesn't like to keep a Cabinet officer and the Surgeon General waiting. They were familiar with the experience of the field trials. They were familiar with the goals of the Foundation, all but three of them having done original research in the polio field under the auspices of the Foundation.

They also knew that the many aspects of the long report on the field trials would require long and careful study. But if the vaccine would cut down the incidence of paralytic polio two and half times, how could they justify any delay? They remembered the bad batches of the earlier period, the perils of the Mahoney strain, and the unaccountable appearance of live virus at the

end of a long series of successful tests. For a while the desirability of going carefully into all the factors was discussed, but they all knew only too well that it could not be done in one session. Still somewhat stunned by the cheers of the crowd, the blinding flash of bulbs, the heat and glare of kleig lights, and, over everything, the cries of "It's safe! It's here!"—they may have felt that the decision was no longer theirs to make.

They shook Doctor Salk's hand, and amid some talk of what a magnificent job "Tommy" Francis had done, the risk of harming a few to save many was taken: They recommended unanimously that the vaccine be licensed.

Report of the Executive Meeting of The Medical Society of Nova Scotia

THE Annual Meeting of the Executive of The Medical Society of Nova Scotia was held at the Fort Cumberland Hotel, Amherst, N. S., Tuesday, September 6, 1955.

Present were: Doctor D. M. Cochrane, President; Doctors R. O. Jones, C. H. Young, W. W. Bennett, J. A. MacCormick, A. L. Sutherland, C. G. Harries, R. E. Price, C. L. Gosse, A. L. Murphy, D. R. Sutherland, A. G. MacLeod, A. W. Ormiston, M. R. Macdonald. Also present was Doctor J. S. Robertson, Deputy Minister of Health.

The minutes of the Annual Executive Meeting of September 6th, 1954, the Executive Meetings held on October 25, 1954, and February 1st, 1955, and also of the 101st Annual Meeting were read by the Secretary. On motion all minutes were adopted.

Re: Minutes:

Moved by Doctor A. W. Ormiston; seconded by Doctor R. E. Price—That the minutes of the Executive and Annual Meetings be mimeographed and distributed to the members of the Executive as soon after meetings as possible, and that extra copies be made for distribution to the executive members two weeks before meetings and also to Chairmen of Committees whose reports are discussed.

Also that the subject matter discussed together with the final action and only the names of movers and seconders of motions be printed in the Nova Scotia Medical Bulletin.

Also that copies be given to any member requesting same. Carried.

Re: Full-time Civil Service Appointments of Radiologists and Pathologists:

Moved by Doctor R. O. Jones; seconded by Doctor A. L. Murphy—That the Committee on Medical Economics consider the terms of employment of full or part-time physicians of any organization and what principles should be observed. Carried.

Re: Change in Society's Motto:

Moved by Doctor R. O. Jones; seconded by Doctor R. E. Price—That the change in the Society's motto from "Health of Humanity" to "Health and Humanity" be referred to the general meeting for approval. Carried.

Re: Annual Meeting:

Considerable discussion took place regarding the Annual Meeting, i.e. the time of year, location, type of programme, the attendance of The Canadian Medical Association team, the Medical Exhibitors, hotel accommodation, etc.

It was moved by Doctor A. G. MacLeod; seconded by Doctor C. G. Harries—That a Committee be formed to ascertain the most suitable time, location and programme for the Annual Meeting. This Committee to report to the next meeting of the Executive and that the Executive have the power to make the final decision. Carried.

Later the following members were appointed to this Committee, Doctor C. L. Gosse, Chairman, Doctor R. O. Jones, Doctor M. R. Macdonald, Doctor J. R. McCleave, Doctor A. W. Ormiston.

Re: Report of Committee on Revision of the Constitution and By-laws:

There was some discussion of this report submitted by Doctor N. H. Gosse, Chairman.

It was moved by C. L. Gosse; seconded by Doctor E. F. Ross—That no action be taken by the Executive on the report of the Committee on the Revision of the Constitution and By-laws but that it be presented to the general meeting. Carried.

Re: Report of the Committee of the Position of a Full-time Secretary:

Doctor E. F. Ross presented his report. He stated that no applications were received from medical doctors, but that two applications were received from non-medical people.

After some discussion, during which a letter was read from the Cape Breton Medical Society in which it was stated that that Society went on record as being opposed to the appointment of a full-time Secretary on the grounds that the increased cost would necessitate an increase in membership dues to the point that there would be a loss of membership.

It was decided that this matter be referred to the general meeting asking that they give the Committee instructions to carry on their work.

Re: Medical Care for Wards of the Children's Aid Societies and the Director of Child Welfare:

A letter was read from the Assistant Director of Child Welfare, Province of Nova Scotia stating that the plan of medical care as submitted by The Medical Society had been considered by all the Children's Aid Societies and that four Societies have definitely not approved of entering into a contract. This report was received.

Re: Expense Accounts for Members of The Medical Society:

The Secretary submitted a report prepared by the Treasurer and himself on the payment of hotel and travelling expenses for members of The Society who attend meetings of the Executive or Committees on Society business.

In summary, it was proposed that—

1. All members attending Committee Meetings of The Society, away from home, with the exception of the Annual Meeting, be reimbursed.
2. That the rate of compensation be based on a formula of nine cents a mile (return) which will cover travelling expenses and a one day stay at a hotel.
3. For each additional day at a hotel an additional $10.00 be paid.
4. The minimum payment for one day is $10.00.
5. The payments are to be automatic, when the Chairman of a Committee submits a statement, stating when the meeting was held, and who attended.
6. When members attend more than one meeting for which expenses are

allowed, e.g. Maritime Medical Care and an Executive Meeting, The Medical Society will pay one half the usual amount.

Moved by Doctor A. L. Sutherland; seconded by Doctor A. G. MacLeod —That the report be accepted and presented to the general meeting. Carried.

Re: Choosing of the President of Maritime Medical Care Incorporated:

At the last Annual Meeting a motion was passed asking Maritime Medical Care to change their Constitution to enable them to choose their President from any member in good standing of The Medical Society of Nova Scotia. A reply was received from Maritime Medical Care stating that in future the President of Maritime Medical Care may be elected from any member of The Medical Society of Nova Scotia who is a Participating Physician and has also served as a Member of the House of Delegates.

Moved by Doctor R. O. Jones; seconded by Doctor A. W. Ormiston—That this report be referred to the general meeting for their information. Carried.

Re: Change in Constitution of Halifax Medical Society:

Re a letter from the President of the Halifax Medical Society stating that the following resolution was passed by that Society—"Resolved that the annual fee of the Halifax Branch of The Medical Society of Nova Scotia be increased," and that approval of The Medical Society of Nova Scotia was sought.

It was moved by Doctor C. L. Gosse; seconded by Doctor R. O. Jones—That this be recommended to the general meeting. Carried.

Re: Resolution from Western Nova Scotia Medical Society re the question of nurses doing intravenous therapy, it was moved by Doctor R. E. Price, seconded by Doctor A. G. MacLeod that this be turned over to the Committee on Nursing.

Re: Resolution from Western Nova Scotia Medical Society regarding a non-medical man travelling through the Province practising medicine. It was moved and seconded that this be sent to the Provincial Medical Board.

The following reports on publications from the Department of Health were referred to the Committee on Public Health.

1. "Minimum Requirements for Acceptable Obstetrical Service in Hospitals and Minimum Standards for Nurseries for the Newborn."
2. "A Guide for Prenatal Teaching."
3. "Venereal Disease Examination and Treatment Programme."

Re: Child and Maternal Health:

A letter was read from Doctor H. B. Atlee who recommended that a Standing Committee on Child and Maternal Health be set up.

It was moved by Doctor A. L. Sutherland; seconded by Doctor A. G. MacLeod—That a Standing Committee of The Society in Child and Maternal Health be set up. Carried.

Re: Health Insurance:

Correspondence from Doctor A. D. Kelly, General Secretary of The Canadian Medical Association, was read.

The Canadian Medical Association has set up a National Advisory Committee on Health Insurance and the services of this Committee were offered to the Hon. Paul Martin, Minister of National Health. The members of the Committee are:

Doctor N. H. Gosse, Halifax, N. S., Chairman.
Doctor T. C. Routley, Toronto, Ontario.
Doctor R. W. Richardson, Winnipeg, Manitoba.
Doctor F. A. Turnbull, Vancouver, B. C.
Doctor M. A. R. Young, Lamont, Alberta.
Doctor J. Lloyd Brown, Regina, Saskatchewan.
Doctor M. O. Klotz, Ottawa, Ontario.
Doctor J. R. Lemieux, Quebec, Quebec.
Doctor E. S. Miller, Montreal, Quebec.
Doctor A. D. Kelly, Toronto, Ontario.

It was suggested that each Provincial Division set up similar Advisory Committees who would offer their services to the Provincial Minister of Health.

A resolution regarding Health Insurance was presented in the report of the Public Relations Committee. This report was adopted.

Subsequently, at the General Meeting it was agreed that such an Advisory Committee be set up in Nova Scotia, and the following members of the Committee were appointed by the Executive—

Doctor D. M. MacRae, Halifax, Chairman.
Doctor H. J. Devereux, Sydney.
Doctor Hugh F. McKay, New Glasgow.
Doctor Hugh E. Christie, Amherst.
Doctor F. J. Barton, Dartmouth.

The report of the Committee on Medical Economics was presented by Doctor H. J. Devereux, Chairman of the Committee, and was adopted.

Report of the Committee on Public Relations:

This report was presented by Doctor F. J. Barton, Chairman. Special mention was made of the Public Relations Conference held as part of the convention programme on September 7, 1955. The item in the conference agenda which deservedly occupied the greater part of this programme was "The Importance of our Public Relations in approaching Health Insurance Legislation." The conference approved that there was urgent need for the setting up of an Advisory Committee to the Provincial Government to serve as liaison between the profession and government in Health Insurance talks. The opinion of the Conference was embodied in a resolution which was presented to the Executive.

The report of the Public Relations Committee was adopted.

Re: Post-Graduate Medical Education:

A letter was read from Doctor A. D. Kelly, General Secretary, The Canadian Medical Association, stating that at the last meeting of General Council, The Canadian Medical Association, a basic grant of $500 per Division and a further grant of one dollar per dues paying members of The Canadian Medical Association resident in the area of each Division was made available for post-

graduate education purposes, on a year to year basis. In the case of the Nova Scotia Division this would amount to $959.00.

It was moved by Doctor A. L. Murphy; seconded by Doctor C. L. Gosse—That this money be turned over to the Dalhousie Post-Graduate Fund Committee and that it be ear-marked for use on specific things. Carried.

Re: Committee on Study of Traffic Accidents:

It was agreed that a Committee for the Study of Traffic Accidents be set up to work in conjunction with the National Committee on the same subject. It was suggested that Doctor A. L. Murphy, Chairman of the Committee on Trauma of the American College of Surgeons, for this area, be Chairman.

This was approved by the General Meeting and the following Committee was set up:

Doctor A. L. Murphy, Halifax, Chairman.
Doctor R. G. A. Wood, Lunenburg
Doctor J. A. McDonald, Glace Bay
Doctor T. C. C. Sodero, Truro.

Re: Committee on Cogswell Library and Medical Museum:

Following reading of a letter from Doctor C. B. Stewart, Dean of the Faculty of Medicine, Dalhousie University, it was agreed that concurrence in his suggestion be approved, viz: that one Committee consisting of two members named by the Faculty of Medicine and one member named by The Medical Society of Nova Scotia be responsible for supervision of the Cogswell Library and the Medical Museum.

Re: Exclusion of Psychiatric and other illness from Medical Insurance Plans:

A resolution was presented from the Faculty of Medicine, Dalhousie University, viz:

"Resolved that the Faculty request The Medical Society of Nova Scotia to make a study of the effect of such exclusions on the practice of medicine in this Province and to take whatever action may be indicated."

It was moved by Doctor W. W. Bennett; seconded by Doctor J. P. McGrath—That Doctor R. O. Jones be made Chairman of a Committee to study the exclusion of psychiatric and other illnesses from medical insurance and hospital plans. Carried.

Report of the Legislative Committee as submitted by Doctor A. R. Morton, Chairman, was accepted.

Report of the Cancer Committee as submitted by Doctor N. H. Gosse was accepted. In regard to this report there was considerable discussion regarding the heavy financial burden imposed upon some patients having to travel to Halifax for treatment and essential follow-up, and

Doctor A. W. Ormiston moved, and Doctor J. P. McGrath seconded—That in view of the distance cancer clinic patients have to travel to reach the Cancer Clinic in Halifax, that the Government undertake to pay transportation for cancer clinic patients to and from the Victoria General Hospital, Halifax, N. S. Motion carried.

This motion was later presented to the General Meeting and was not accepted. Substituted was the following motion:

It was moved by Doctor F. Murray Fraser, seconded by Doctor J. F. Nicholson—That this meeting go on record as approving in principle that indigent cancer patients be given help toward their transportation costs to and from the Tumour Clinic in Halifax, and that our representative on the Federal-Provincial Cancer Grant Advisory Committee be instructed to contact the various interested agencies with a view to bringing this about. Carried.

The report of the Committee on Public Health as submitted by Doctor C. B. Stewart was accepted.

The report of the Historical Committee as submitted by Doctor K. A. MacKenzie was accepted.

The report of the Committee on Workmen's Compensation Board was accepted.

The report of the Editorial Board of the Nova Scotia Medical Bulletin was accepted.

The reports of the Medical Museum Committee and the Cogswell Library Committee as submitted by Doctor D. Smith and Doctor A. W. Titus respectively were accepted.

The report of the Industrial Medicine Committee as submitted by Doctor A. B. Campbell was accepted. It was moved and seconded that this report be turned over to the incoming committee on Industrial Medicine for study.

The report of the Rehabilitation Committee as submitted by Doctor W. D. Stevenson was accepted.

The report of the representative on the Board of the Maritime Hospital Service Association was accepted.

The report of the Committee on Tariff was received and referred to the general meeting, on motion. In connection with the discussion on this report it was moved by Doctor A. L. Murphy, and seconded by Doctor C. L. Gosse—"that at this time, in adjusting the schedule of fees for The Medical Society of Nova Scotia, no reduction be made in any minimum fee unless it be above the common scale across the country." Carried.

It was moved by Doctor A. L. Sutherland; seconded by Doctor C. L. Gosse—That when the fees are out of line with the rest of the country that the Tariff Committee have power to change them. Carried.

The report of the Provincial Medical Board as submitted by Doctor H. L. Scammell was accepted.

The reports of the Secretary and Treasurer were adopted on motion.

The report of Maritime Medical Care, Incorporated, was read by Doctor A. G. MacLeod, who moved that it be received and referred to the general meeting. This was seconded and carried.

Re: Membership Fees:

It was moved by Doctor C. H. Young; seconded by Doctor D. R. Sutherland—That the fees for 1956 be $60.00, which will cover the fees for the post-graduate education levy of $5.00, and The Canadian Medical Association fees of $20.00. Carried.

Later this motion was presented to the General Meeting and as it involved a change in the By-laws (old), it was given as a notice of motion.

Reports were received from representatives of The Medical Society on the Advisory Committees dealing with Federal-Provincial Health Grants.

Re: Honorary Members of The Medical Society of Nova Scotia and Senior Members of The Canadian Medical Association it was agreed to send a list of present Honorary and Senior Members to the Branch Secretaries.

Doctor F. L. Hill, Parrsboro, was elected an Honorary Member of The Medical Society of Nova Scotia.

New Members.

The following new members were admitted to membership:

Doctor Lloyd S. Allen, Sydney
Doctor Frank G. Bell, Halifax
Doctor Liesselotte Brown, Halifax
Doctor D. Robert Campbell, Shelburne
Doctor C. Frederick R. di Profio, Sydney
Doctor Stanislaw B. Donigiewicz, Antigonish
Doctor William O. Elliott, Halifax
Doctor Arno Elmik, Canso
Doctor Hermann H. Felderhof, New Glasgow
Doctor Norman G. Glen, Amherst
Doctor Peter C. Gordon, Liverpool
Doctor Max Gorelic, New Waterford
Doctor Patrick J. Gouthro, Sydney
Doctor Alexander W. Gyorfi, Glace Bay
Doctor Clifford E. Jebson, Fairview
Doctor George E. Kenny, Hantsport
Doctor P. Hugh Kirkpatrick, North Sydney
Doctor J. Allen Myrden, Halifax
Doctor John R. MacKinnon, Neil's Harbour
Doctor N. Kenneth MacLennan, Sydney
Doctor William MacL. MacRae, Halifax
Doctor Roland Ruf, Eastern Passage
Doctor C. Blake Smith, Kennetcook
Doctor Tadeusze Tenderenda, Dartmouth
Doctor I. McC. Todd, Advocate Harbour
Doctor Wylie F. Verge, Dartmouth
Doctor Helen M. Wilks, Bedford

Welfare Contract

The new contract between The Society and the Department of Welfare which provides medical care for the recipients of Mothers Allowance and Blind Pensions was received.

Members of General Council.

On motion the following were appointed Society representatives for the meeting of the General Council of The Canadian Medical Association:

Doctor R. O. Jones
Doctor M. R. Macdonald
Doctor F. J. Barton
Doctor A. G. MacLeod
Doctor A. W. Ormiston
Doctor J. R. McCleave
Doctor W. G. Colwell
Doctor C. G. Harries
Doctor E. F. Ross

Doctor C. G. Harries, New Glasgow, was appointed representative on the Nominating Committee of The Canadian Medical Association, and Doctor D. M. Cochrane to be the alternate.

Doctor A. G. MacLeod was appointed as representative of the Nova Scotia Division on the Executive of The Canadian Medical Association and representative on the Executive of the Section on General Practice.

On motion the meeting adjourned.

M. R. Macdonald, M.D.,
Secretary.

Report of the 102nd Annual Meeting of the Medical Society of Nova Scotia

The Business Meetings were held at the Fort Cumberland Hotel, Amherst, N. S. on September 7th, 8th and 9th, 1955.

The minutes of the Annual Executive and Business Meetings as printed in the Nova Scotia Medical Bulletin, September and October, 1954, were adopted.

Report of the Committee to Study a Revision of the Constitution and By-laws.

This report was presented by Doctor N. H. Gosse, Chairman of the Committee and each Chapter was dealt with separately.

After a full discussion on each chapter Doctor N. H. Gosse moved and Doctor A. R. Morton seconded—"That the report of the Committee on the Constitution and By-laws be now adopted and that the Executive be instructed to promulgate these By-laws now adopted as soon as the circumstances make such promulgation practicable." Carried.

Report of Maritime Medical Care Incorporated.

The report of Maritime Care Incorporated, as printed elsewhere, was read by Doctor A. G. MacLeod, who also moved its acceptance. This was seconded by Doctor C. J. W. Beckwith. After considerable discussion Doctor F. J. Barton moved and Doctor N. H. Gosse seconded—"That a Committee be appointed to study the whole question of the position of Maritime Medical Care in relation to the Society and to consider the various matters brought before the Society at this meeting and report its findings to the Executive of this Society." Carried.

Doctor J. A. McDonald moved and Doctor C. L. Gosse seconded—"That should this special Committee after study and meetings with Maritime Medical Care come to agreement regarding changes in the Participating Physicians Agreement and the construction of the proposed building, and if the Executive Committee also agree, then a special general meeting be called to discuss and pass upon the proposed changes and/or building construction. Carried.

Report of the Tariff Committee.

The report of the Tariff Committee was read by Doctor A. W. Titus, Chairman. Doctor Titus moved the adoption of the report which was seconded.

Doctor C. E. Kinley moved an amendment to this motion for adoption and it was seconded by Doctor J. F. Nicholson—"That in view of the increasing importance of a fair and adequate scale of minimum fees to The Medical Society of Nova Scotia, be it resolved;

(1) That the report of the Tariff Committee be referred to the incoming Tariff Committee for a complete review of the scale of minimum fees of The Medical Society of Nova Scotia.

(2) That the new Tariff Committee report to the Executive at its earliest convenience and that the Executive decide what action should be taken on the report.

(3) That the incoming Tariff Committee be constituted so that there is practically equal representation between general practitioners and specialists, a committee of no more than thirteen is suggested.

(4) That before a change be made in the scale of fees of any particular group, a representative of that group be requested to appear before the committee for consultation."

This amendment carried.

The Report of the Nominating Committee as printed in the Bulletin was presented by the Chairman, Doctor H. J. Devereux, and was accepted.

List of Obituaries:

The following list of obituaries was read and one minute's silence was observed in memory of the departed members:

Frederick August Fullmore Corbett, M.D., McGill 1896, died at Regina, Alberta, July 3rd, 1954, at the age of eighty-four.

William Henry Eagar, M.D., McGill 1900, died at Wolfville, September 2nd, 1954, at the age of seventy-seven.

Clarence Gordon Campbell, M.D., Dalhousie 1924, died at Vancouver, B.C., on October 13, 1954, at the age of fifty-three.

Cameron St. Clair Guild, Dalhousie 1925, died at Tupper Lake, New York, on October 18, 1954, at the age of fifty-eight.

Burton Elliott Goodwin, M.D., McGill 1908, died at Amherst on January 27, 1955, at the age of seventy-four.

George Gaw Gandier, M.D., Halifax Medical College 1898, died at Dartmouth on January 27th, 1955.

Eric Fergus John Dunlop, M.D., Edinburgh 1929, died at Bridgewater on February 6th, 1955, at the age of forty-eight.

William Thomas McKeough, M.D., Dalhousie 1914, died at Sydney Mines on February 25, 1955, at the age of sixty-six.

William James Egan, M.D., McGill 1901, died at Sydney on March 27, 1955, at the age of seventy-seven.

Mary MacKenzie Smith, M.D., Dalhousie 1905, died at Pictou, April 30th, 1955, at the age of eighty-seven.

Charles Stewart Morton, M.B., Toronto 1901, died at Halifax on May 12th, 1955, at the age of seventy-eight.

Re: the Resolution of the Executive on full-time civil service appointments for radiologists and pathologists. After some discussion it was agreed that this subject was covered satisfactorily in the new By-laws under the terms of reference for the Medical Economics Committee.

Appointment of an Auditor:

Doctor C. H. Young moved and Doctor J. F. Nicholson seconded—That the firm of H. R. Doane and Company be appointed as auditors. Carried.

Report of the Medical Economics Committee:

Doctor H. J. Devereux read the report of the Medical Economics Committee. In the light of this report the following motions were made:

Doctor Arthur L. Sutherland moved, and Doctor J. F. Nicholson second-

ed—That the Society approve the signing of a contract for medical care for wards of the Children's Aid Society and the Director of Child Welfare. Carried.

It was moved by Doctor H. J. Devereux and seconded by Doctor C. H. Young—That The Medical Society go on record as approving the type of medical welfare plan offered for the wards of the Children's Aid Society and the Director of Child Welfare. Carried.

On motion the meeting adjourned.

M. R. Macdonald, M.D.,
Secretary

Maritime Psychiatric Association

The first annual meeting of the Maritime Psychiatric Association was held in Moncton on September 23rd and 24th. In attendance from Halifax were Doctors Jones, Nicholson, Hirsch and Dunsworth, Brown, Williams, Walsh and Giffin. From the Nova Scotia Hospital were Doctors Ralph Townsend and Harry Poulos. Also in attendance from Halifax were Doctors Sol and Doris Hirsch.

In conjunction with this meeting, a teaching seminar was held by the Department of Psychiatry of Dalhousie University, at which the guest speaker was Doctor A. E. Moll, Chairman of the Department of Psychiatry at the Montreal General Hospital. Doctor Moll presented papers on:

A. The Psychiatric Ward in a General Hospital.

B. Interviewing.

C. The Psychopathology of Suicide.

On September 24, the annual business meeting was held and the new officers are as follows: President, Doctor John Theriault, Charlottetown; Vice-President, Doctor C. Adair, Fredericton; Secretary-Treasurer, Doctor R. Forsythe, Charlottetown. Directors from the various provinces: Doctors Dunsworth, Murchison and Prosser.

It is probable that next year's meeting will be held in Charlottetown, P. E. I. Doctor Ralph Townsend was the President and presided over this year's meeting.

R. O. Jones, M.D.

DALHOUSIE UNIVERSITY POST-GRADUATE PROGRAMME

Week in Obstetrics, Gynaecology and Paediatrics.

November 28th - December 2nd, 1955

This course provides a maximum of practical experience for the candidates and in order to facilitate this, accommodation is available at the Grace Maternity Hospital at a cost for $5.00 for the week. Registration fee for the course is $25.00 and is payable on arrival in Halifax. Kindly make your application as early as possible to the Executive Officer, Post-Graduate Office, Victoria General Hospital, Halifax, N. S.

PROGRAMME

Monday, November 28th, 1955.

9.00-10.00 Problems of Obstetrics.—Dr. H. B. Atlee.
10.00-11.30 The Place of X-Ray in Obstetrics.—Dr. I. A. Perlin.
11.30- 1.00 Symposium.
(a) Minor Complaints in Pregnancy.—Dr. J. McD. Corston.
(b) Diabetes in Pregnancy.—Dr. W. G. Colwell.
(c) Cardiac Disease in Pregnancy.—Dr. K. M. Grant.
2.00- 4.00 Gynaecological Procedures in Office Practice.—Dr. M. G. Tompkins.
4.00- 5.00 Film—Abnormal Obstetrics.—Dr. E. Woloschuk.

Tuesday, November 29th, 1955.

9.00-10.00 Case Presentations—A Review of Common Respiratory Infections. Diagnosis and Treatment.
Moderator: Dr. N. B. Coward.
11.00-12.00 Fluid Balance.
Demonstration of Paediatrics Procedures.—Dr. J. M. Crosby, Dr. R. S. Grant.
2.00- 3.00 Conditioning for Childbirth.
(a) Nurse and Hospital.—Mrs. P. Cook.
(b) Doctor's Responsibility.—Dr. W. R. C. Tupper.
3.00- 4.00 Problems of Prenatal Care.—Dr. W. R. C. Tupper.
4.00- 5.00 Film.—Physiology of Normal Menstruation.—Dr. M. G. Tompkins.
5.00- 6.00 Problem Cases—Obs. Gyn. Staff.

Wednesday, November 30th, 1955.

9.00-10.00 Ward Walk—5th Floor West, V.G.H.—Dr. H. B. Atlee.
10.00-12.00 Demonstration in Operating Room (a) Cauterization; (b) Conization; (c) Biopsy of Cervix; (d) Insertion of Pessary; (e) Removal of Bartholin's Glands; (f) D & C; (g) Emptying Incomplete Abortion.
12.00- 1.00 Symposium—Uterine Bleeding.
(a) Organic Causes.—Dr. J. McD. Corston.
(b) Functional Bleeding.—Dr. K. M. Grant.
Discussion by Staff.
2.00- 3.30 Paediatric X-Rays—Discussion of Techniques and Interpretation.—Dr. R. L. Smith.
3.30- 4.30 Common Emotional Disturbances in Children.—Dr. F. A. Dunsworth.
4.30- 5.30 Surgical Ward Rounds.—Surgical Staff.

Thursday, December 1st, 1955.

9.00-10.00 The Problem of Sterility.—Dr. M. G. Tompkins.
10.00-11.00 Proper Application of Forceps Head and Breech.—Dr. H. B. Atlee.
11.00-12.30 Symposium.
(a) Ante Partum Bleeding.—Dr. W. G. Colwell.
(b) Post-Partum Complications.—Dr. W. R. C. Tupper.
2.00- 3.00 The Vomiting Infant—illustrated by Kodachrome Slides.—Dr. R. S. Grant.
3.00- 5.00 Symposium: Recent Advances in Paediatrics.
(a) Nephrosis.
(b) Erytheroblastosis.
(c) Poisoning.
Dr. G. B. Wiswell, Dr. H. B. Ross, Dr. H. Hunter, Dr. P. Sigsworth.

Friday, December 2nd, 1955.

9.00-10.00 Paediatric Dermatology—The Common Skin Conditions—Diagnosis and Treatment—Dr. D. R. S. Howell.
10.00-12.00 Weekly Medical Ward Rounds.
Moderator: Dr. G. B. Wiswell.
The Medical Staff, Children's Hospital.
3.00- 3.00 Problems of Abnormal Uterine Action.—Dr. I. A. Perlin.
3.00- 5.00 Symposium.
(a) Post Maturity.—Dr. C. S. Robinson.
(b) Virus Infections (Measles).—Dr. C. F. Brennan.
(c) Toxaemias of Pregnancy.—Dr. K. M. Grant.
(d) Eclampsia.—Dr. J. McD. Corston.

Society Meetings

WESTERN NOVA SCOTIA MEDICAL SOCIETY

Twenty-three members of the Western Nova Scotia Medical Society were the guests of Doctor and Mrs. G. V. Burton at their country home, Eel Brook, Yarmouth County, on Tuesday, September 27th. Following a delicious buffet luncheon, we adjourned to the boat house to hear our special speaker, Doctor Benjamin Tenney, Professor of Obstetrics and Gynaecology at Boston University. Doctor Tenney arrived by plane that afternoon from Halifax where he ably served as a guest speaker at the Dalhousie Post-Graduate Course in Halifax. He spoke to us on "Haemorrhage During Pregnancy", and provoked a lengthy and interesting discussion.

Doctor L. M. Morton acted as chairman in the absence of Doctor Robert Belliveau.

Doctor Pierre Belliveau moved a vote of thanks to the speaker and to Doctor and Mrs. Burton.

D. F. Macdonald, Secretary,

Western Nova Scotia Medical Society.

Personal Interest Notes.

Public health grants for special training courses in child and maternal health and in health education have been awarded to residents of Nova Scotia and Prince Edward Island.

In Nova Scotia a public health grant goes to Doctor E. L. Eagles, director of child and maternal health in the provincial department of public health, for a course in child and maternal health service.

Doctor Eagles will spend two months at the School of Public Health, Johns Hopkins University, Baltimore. Following this he will spend a two week period of observation and training with the New York City department of health and a similar period with the department of health of the State of Connecticut.

Doctor Vernon K. Rideout, formerly of Westville, Pictou County, has taken over the position of Divisional Medical Officer for the Nova Scotia Department of Public Health in Yarmouth. For the past year Doctor Rideout took post-graduate work in public health at the University of Toronto. Prior to that he was on the medical staff of Roseway Hospital at Shelburne.

Doctor J. R. Cameron, who was practising in Middle Musquodoboit for a number of years, completed a post-graduate course in public health at the University of Toronto. He has been appointed Divisional Medical Health officer with headquarters in Dartmouth.

The Bulletin extends congratulations to Doctor and Mrs. R. G. A. Wood of Lunenburg on the birth of a son, Peter Wayne, on September 5th; to Doctor and Mrs. F. A. Dunsworth of Halifax on the birth of twin girls, Janet and Jacqueline, on September 2nd, and to Doctor and Mrs. Ian M. MacLeod of Halifax on the birth of a daughter, Sandra Jean, on October 11th.

Doctor Gordon W. Bethune of Halifax attended a congress of the International College of Surgeons in Philadelphia early in September, and presented a paper on "Certain Aspects of Cancer of the Breast."

Doctor and Mrs. J. W. Merritt of Halifax were in Philadelphia in September, where Doctor Merritt attended the annual meeting of the American College of Surgeons, when he received a Fellowship in the International College of Surgeons. Doctor Merritt is also a Fellow of The Royal College of Surgeons of Canada.

Doctor Roy A. Moreash of Berwick received a Fellowship in the International College of Surgeons at Philadelphia in September.

Doctor A. B. Campbell of Halifax was recently appointed to the Provincial Medical Board for a period of three years.

The marriage took place in Dartmouth on July 1st of Doctor Margery Una Morris, Dal. 1954, daughter of Mayor and Mrs. Claude H. Morris of Dartmouth and William George Oakley, son of Mrs. H. S. Oakley and the late H. Sidney Oakley of Halifax and Kentville.

The marriage took place in Pictou on September 3rd of Doctor Marjorie Lorraine Smith, Dal. 1954, daughter of Mrs. Bert A. Smith of Pictou and Halifax and the late Mr. Smith, and Doctor Kevin Patrick Smith, Dal. 1954, son of Mrs. William Smith of Curling, Newfoundland, and the late Mr. Smith. Both Doctor Smith and his wife are practising in Spryfield.

At an impressive ceremony at St. Anne's College, Church Point, on August 16th, when Doctor J. E. LeBlanc of West Pubnico was master of ceremonies, diplomas of distinction were conferred to seven Acadians, among them being Doctor P. E. Belliveau of Meteghan.

The Cumberland Medical Society are pleased and proud to announce that the attractive paintings presented to the ladies at the annual banquet of The Medical Society of Nova Scotia on September 8th were the work of the noted Amherst artist, Mr. Fred Nicholas.

We regret to report that Doctor J. J. Carroll of Antigonish, while on a vacation in Boston with Mrs. Carroll in September, was taken ill and is at present a patient in a Boston Hospital. The last report was that his condition was satisfactory.

Obituary

The death occurred at Boston on September 3rd of Alexander Gordon Nutlay, M.D., D.D.S., at the age of fifty-four, following a lengthy illness.

Doctor Nutlay came to Halifax twelve years ago and practised dentistry for ten years before assuming a professorship at a Boston University.

A graduate of Dalhousie University school of dentistry, he was associated for some time with the Children's Hospital. He was a member of the Shaar Shalom congregation of Halifax.

He is survived by his wife, Anna, a son, Andrew, two brothers and a sister.

Funeral services were held in Montreal on September 4th.

The Bulletin extends sympathy to Doctor K. P. Hayes of Halifax on the death of his father, Thomas I. Hayes, who died at Halifax October 2nd after a lengthy illness, at the age of ninety-five, and to Doctor J. S. Manchester of Halifax on the death of his father, Percy Manchester, who died at Saint John, N. B. on September 23rd.