

The . . .

BULLETIN

of the . . .

VANCOUVER MEDICAL ASSOCIATION



*With Which Is Incorporated
Transactions of the*

VICTORIA MEDICAL SOCIETY

the

VANCOUVER GENERAL HOSPITAL

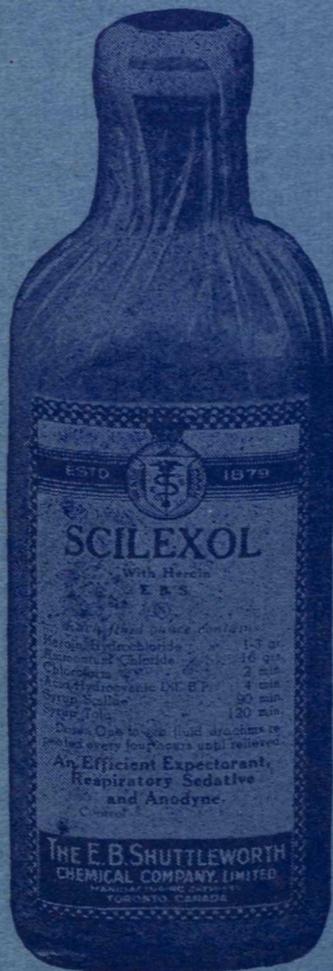
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BULLETIN

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All communications to be addressed to the Editor at the above address.

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DECEMBER, 1944

No. 3

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VANCOUVER HEALTH DEPARTMENT

STATISTICS—OCTOBER, 1944

Total Population—Estimated	299,460
Japanese Population—Estimated	Evacuated
Chinese Population—Estimated	5,728
Hindu Population—Estimated	227

	Number	Rate per 1,000 Population
Total deaths	282	11.1
Japanese deaths	—	Population Evacuated
Chinese deaths	25	51.6
Deaths—residents only	237	9.7

BIRTH REGISTRATIONS:

Male, 296; Female, 315

611 24.1

INFANT MORTALITY:

	October, 1944	October, 1943
Deaths under one year of age	6	8
Death rate—per 1,000 births	9.8	13.7
Stillbirths (not included above)	5	11

CASES OF COMMUNICABLE DISEASES REPORTED IN THE CITY

	September, 1944		October, 1944		Nov. 1-15, 1944	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Scarlet Fever	20	0	24	0	26	0
Diphtheria	0	0	0	0	0	0
Diphtheria Carrier	0	0	0	0	0	0
Chicken Pox	19	0	29	0	14	0
Measles	21	0	74	0	77	0
Rubella	6	0	2	0	3	0
Mumps	14	0	20	0	3	0
Whooping Cough	20	1	32	0	12	0
Typhoid Fever	0	0	0	0	0	0
Undulant Fever	0	0	0	0	0	0
Poliomyelitis	0	0	1	0	0	0
Tuberculosis	87	7	40	8	—	—
Erysipelas	1	0	1	0	1	0
Meningococcus Meningitis	1	0	0	0	0	0
Paratyphoid Fever (Carrier)	0	0	0	0	0	0
Infectious Jaundice	0	0	6	0	0	0
Typhi-murium	6	0	6	0	0	0
Dysentery	0	0	2	0	0	0

**V. D. CASES REPORTED TO PROVINCIAL BOARD OF HEALTH
DIVISION OF VENEREAL DISEASE CONTROL**

Vancouver Rich- North West
 mond Vancouver Burnaby Vancouver

Syphilis (September)

Gonorrhœa (September)

(Figures for October not yet available.)

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* * * *

PROGRAMME OF THE FORTY-SEVENTH ANNUAL SESSION

GENERAL MEETINGS will be held on the first Tuesday of the month at 8:00 p.m.

CLINICAL MEETINGS will be held on the third Tuesday of the month at 8:00 p.m.

These meetings will continue to be amalgamated with the clinical staff meetings of the various hospitals for the coming year. Place of meeting will appear on the agenda.

General meetings will conform to the following order:

8:00 p.m. Business as per agenda.

9:00 p.m. Paper of the evening.

January 2—GENERAL MEETING: Cancelled.

January 23—COMBINED CLINICAL MEETING AND STAFF MEETING AT
VANCOUVER GENERAL HOSPITAL.

February 6—GENERAL MEETING:

Carcinoma of the Cervix—Dr. Ethlyn Trapp.

Late Manifestations—Urological—Dr. L. R. Williams.

Rectal—Dr. A. T. Henry.

Neurological—Dr. Frank Turnbull.

February 20—COMBINED CLINICAL MEETING AND STAFF MEETING AT
ST. PAUL'S HOSPITAL.

March 6—OSLER LECTURE.

March 20—COMBINED CLINICAL MEETING AND STAFF MEETING AT
VANCOUVER GENERAL HOSPITAL.

April 3—GENERAL MEETING: Penicillin Therapy.

Discussion to be led by Major W. W. Simpson, R.C.A.M.C.

April 17—COMBINED CLINICAL MEETING AND STAFF MEETING AT ST.
PAUL'S HOSPITAL.

May 1—ANNUAL MEETING.

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THE EDITOR'S PAGE

With this, the somewhat overdue but final number of the BULLETIN for 1944, we take the opportunity of wishing all our readers all happiness and prosperity for the future. This, of course, is the conventional greeting we all utter at this time—but surely, in this the end of the fifth year of war, the wish is more than a mere form of words. We all long for the end of this horror of great darkness, this terrible agony of a whole world. We in B. C. hardly know, except for our personal losses and bereavements, that a war is raging—but that is mere luck and circumstance—and anything may yet happen. But meantime, we, with all the rest of the world, have only one wish, one prayer—to see peace again and the light of a day free from the menace and destruction of war.

We do not, perhaps, take sufficient thought of the changes that this war is going to make in our lives: changes great enough, as we think they will be, to constitute a revolution. There is a grave danger, in our opinion, of thinking that what peace will and should mean, will be a return to our old ordered ways of a more or less static social order, similar in all main respects to the one that held its uneasy footing before 1939. We can hardly expect, and still less should we hope, to return to such a "normalcy," to use the abominable word introduced into our common language by the late President Harding. Surely out of this monstrous evil of world war, some better thing must come than that. But in what form, or according to what social, economic and political theories the new order will finally emerge, we cannot say. We can only hope that it will be based on a wider view of human values: if it is not, we have suffered a countless and irreparable loss largely in vain.

How will it affect us in medicine? and should we not, even now, be thinking in constructive terms of some of the problems that our profession will have to face? Constructive, and unselfish, too. If the war ended tomorrow, we should be faced with certain immediate questions, demanding immediate solution—some of them questions that have long remained unanswered, and which the war and its social upheaval have merely brought to a head where prompt and decisive action is now necessary. Such questions as the more even and equitable distribution of medical services (health insurance, if you like, or its equivalent), the much wider application of preventive medicine (this is perhaps even more vital as an immediate problem), the huge question of mental hygiene—of child welfare—and the great problems of housing, clothing, social adjustments—one's head reels as these questions, largely unsolved, but insistent of solution, bob up in rapid succession. Of what value is health insurance, no matter how excellently conceived and how loyally implemented, if these other greater factors in the social muddle are not accounted for? Work, wages, freedom from want, social security, physical wellbeing—these are all links in the same chain—snapping one, all are in danger of being lost.

What are we as a profession going to do about it? The wisest of our leaders keep constantly warning us that it is not enough for us to be on the defensive, as regards our own rights and privileges—not enough even to work for adequate schemes of health—not even if these take due cognizance of preventive measures. We must consider other causes of disease, social as well as physical disease; we should know and be able to advise about such things as shoes, diet, dental requirements, lighting, housing, ventilation, school conditions. The trouble is that the therapeutic half of the medical profession has, so far, been the only side that has taken any part in medical economics. Circumstances of employment and service have made this perhaps inevitable. But this has led to a state of affairs that is bad, from our point of view as well as that of the public. These factors that we refer to above are not strictly our business as therapists, though we are told by everyone that we neglect them. They are the affairs

of our brothers who work at Public Health and Preventive Medicine. They have not been consulted as they should have been—their knowledge, which is ample and would be freely at our disposal, has not been made available to us in our consultations amongst ourselves, and with the authorities. It is high time that the medical profession took steps towards a more complete integration of its two main sections, therapeutic and preventive, that it became more socially conscious, and assumed its rightful duties and position as advisor and counsellor to the public, not only for the care and treatment of the sick, but with a view to prevention of sickness and lessening the amount of disease. Till we become much more aware of our duties and our capacities in this direction, we shall not be doing our full share in the community, nor contributing all we should and can contribute to the common welfare.

Nor can we reach satisfactory decisions and agreements without a much wider contact with the rest of the community than we now enjoy. We should consult with social workers, nurses, members of other professions allied to our own—we should (here comes King Charles' head) have a wider contact with the public, through proper means of publicity, and should keep them informed. Those whose work takes them into immediate touch with the disorders and trouble of the body politic, have information and points of view which we greatly need—they need us, we need them. The wider the base on which the structure we must build shall stand, the more secure and permanent will it be—the fewer the points of weakness, the greater its value to all concerned.

LIBRARY NOTES

RECENT ACCESSIONS TO LIBRARY—

- A Century of Butler's Hospital, 1844-1944, by Wm. R. Roelker, *et al.*
Medical Clinics of North America, Symposium on Recent Advances in Medicine, Philadelphia Number, November, 1944.
An Outline of Tropical Medicine, 1944, by Otto Saphir.
Pioneers of Pediatrics, 1943, by Abraham Levinson.
Modern Clinical Syphilology—Diagnosis, Treatment, Case Study, 1944, by John H. Stokes, H. Beerman and N. R. J. Ingraham.
Psychosomatic Diagnosis, 1943, by Flanders Dunbar.
Text-Book of Ophthalmology, V. I., 1944, by Sir W. Stewart Duke-Elder.

DR. M. G. ARCHIBALD

Obit Dec. 24, 1944

To the great regret of a wide circle of friends in the medical profession of Canada Doctor M. G. Archibald passed away at his home in Kamloops on December 24th, at the age of 71.

No medical man in British Columbia was more respected and loved, both by his patients and the medical fraternity, than Doctor Archibald. He served the people of Kamloops for almost forty years. He was not only deeply respected and loved for his medical skill, but also for his great patience, understanding and kindness.

Doctor Archibald was born at Middle Musquodoboit, N.S., April 17, 1873. He graduated in medicine from Dalhousie University in 1898. After practising in Nova Scotia for four years he came to Kamloops in 1905 and joined Dr. J. S. Burris. Doctor Archibald had been medical health officer of the city and acted as coroner for a great many years.

He was very active in medical association affairs, and in 1944 was made an honorary life member of the Canadian Medical Association. Outside of his medical activities he took a very great interest in all parts of community life. He was a keen worker in the church, past president of the Canadian Club and associated with many other organizations.

Doctor Archibald was one of our finest medical gentlemen, and his friendship was an inspiration to all who had the privilege of enjoying it.

The medical profession extends sincere sympathy to the bereaved family. He is survived by his wife, two daughters, Mrs. C. J. M. Willoughby, Kamloops, Mrs. H. E. Rand, Montreal; three sons, Surgeon-Lieut. W. S. Archibald, R.C.N.V.R., Dr. J. S. Archibald, Kamloops, Cpl. G. D. Archibald, R.C.A.F.; and a brother and sister at Middle Musquodoboit, N.S.

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THE PREVENTION OF MENTAL DISEASES

By DR. G. H. STEVENSON (Toronto)

Read at British Columbia Medical Association Annual Meeting.

In an era of preventive medicine, largely successful for many physical diseases, preventive psychiatry has also been playing its part. The mental hygiene movement dates back to 1908, when Clifford Beers, a New England business man, after a lengthy mental illness, founded with others the Connecticut Society for Mental Hygiene, and the following year the National Committee for Mental Hygiene was begun. With its counterpart, the Canadian National Committee for Mental Hygiene, it has sought to establish better mental health and the prevention of mental diseases, by mental health education, improved teaching of psychiatry in our medical schools, by the encouragement of research into the causes and cure of mental diseases and by improvement in the treatment of the mentally ill in our mental hospitals and elsewhere.

Having used the terms "mental health," "mental hygiene" and "mental disease," perhaps I should attempt to define them.

The mentally healthy person is one who seeks to make satisfying adjustments to the living of his life (not by escaping from it via narcotics, alcohol, suicide, and not at other people's expense, *e.g.* Hitler), who is efficient at his work, who gets along well with his fellows and who in times of severe stress is still able to preserve reasonable efficiency and stability.

Mental hygiene refers to the techniques, methods and habits by which one helps himself in good mental health.

Mental disease might be defined as a more or less prolonged departure from the individual's usual manner of thinking, feeling and acting, with materially reduced capacity for satisfactory adjustments.

It will be obvious from a contemplation of these definitions that none of us has perfect mental health, as we all have periods of decreased satisfactions, with depression, discouragement, or we temporarily engage in unhealthy escapes; we are not always at our peak of efficiency, we do not always make good social adjustments, at times perhaps being unfriendly, domineering, asocial, suspicious and we have not always that reserve of mental strength in times of crisis that we might desire. This parallels physical health. While we aim at physical perfection, we have to be satisfied with minor degrees of physical ill health—arthritis, sinuses, hearing defects, elevated blood pressure, infected tonsils and so on.

Fortunately few of us have frank mental disease, but more people enter mental hospitals than enter universities. The only way we have of calculating the incidence of mental disease is by the statistics published by individual provinces, which are brought together by the Dominion Bureau of Statistics, the 1942 report of mental institutions being the most recent. This slide shows that admissions to mental hospitals in Canada increased steadily 1935-38 with a reduction for the next few years and a rise again in

1941 and 1942. The reasons for the decline are not known, but the rise in other years is probably due to population increase and the more ready acceptance of mental hospital facilities.

The public, and perhaps some physicians, have the idea that mental diseases are on the increase. There is very little evidence to support this belief, rather the reverse. In New York State, having a large population and careful statistical records over a great many years, certain rather definite trends can be shown. This chart shows that dementia praecox has remained stationary since 1918, that manic-depressive psychosis has definitely decreased, offset to some extent by an increase in involution melancholia; psychoses due to syphilis have declined, the alcoholic psychoses remain fairly constant. The only psychosis showing an unmistakable increase, but perhaps not as great as indicated, is the combined senile and cerebral arteriosclerotic groups. During the last thirty years there has been a 100% increase in these groups, whereas people above the age of sixty, in which decades these conditions occur, have increased only about 50% (from 8½% to 12% of the population). These figures are for Ontario, and show what many of you have doubtless suspected for a long time, that Ontario is very definitely becoming senile.

Before discussing the mental diseases, just a word about mental deficiency. This is not a disease or illness but an intellectual arrest at birth or very early life, so that the individual at maturity fails to achieve normal intelligence. Perhaps 1 to 2% of people are mental defectives, approximately 50% of whom inherit their defect from intellectually defective parents. The other 50% are the victims of obstetrical accidents or to illnesses or accidents during the first year of life. Most of both these groups are theoretically preventable by some control of the persons who may bring people into the world, and by improved pre-natal, obstetrical, post-natal care of the mother and by good pædiatric supervision of the child during its first years of life.

Before discussing the preventability of individual mental disorders one might quarrel with the term "mental diseases." It is certainly a better term than insanity, lunacy or madness, but its vagueness seems to make it inaccessible, giving no clues to etiology or pathology or to classification. It is as vague a term as the once well-known "fever diseases," which told us nothing but that the patient had an elevation of temperature. However, for want of a better one, we shall use it. But I like to subdivide it immediately into two main divisions, the delirious mental disorders (the actual psychoses) and the non-delirious mental disorders (the psychoneuroses, alcohol and drug addictions, the reactive depressions). I urge strongly that we use the term delirium for this first group, implying mental confusion, perhaps with hallucinations or memory loss and an inability to realize he is really sick. There is no need, I suggest, to limit the use of the word delirium only to states of mental confusion dependent on an acute toxæmia or head injury, and if look upon all states of mental conditions as delirious states we can insist that all such conditions are within the realm of the general practitioner, challenging us to our best investigative and therapeutic efforts.

The psychotic or delirious group can be readily divided into three sub-groups: (a) deliria due to intoxication, (b) deliria due to organic brain disease, (c) deliria due to mental frailty and a too harsh environment. This last group is best known as the biogenic group, that is, having its origin in the life experiences of the individual. It is sometimes spoken of as the functional or psychogenic group.

Returning to the deliria due to intoxication. Here, a toxin circulating in the blood stream interferes with cerebral function as long as it is present. Alcohol is the commonest toxin producing abnormal mental states from ordinary intoxication, through pathologic intoxication to chronic alcoholism and the alcoholic psychoses. The steadily increasing consumption of alcoholic beverages, as shown on slide 4, indicate that the fairly stable incidence of alcohol psychoses in past years may be due for a rise. This is not the time to discuss the reasons why so many people drink to excess (Omar is a good reference on this question), but there can be no doubt that we are dealing with a public

health problem of considerable magnitude. There can be no doubt either that alcoholic psychoses and pathologic intoxication never develop in total abstainers.

A less common but exceedingly important delirium due to an imbibed toxin is caused by bromides. We are apt to be over-confident in our use of bromides and we value their undoubted therapeutic effects in various conditions, but there are some people who accumulate bromides through poor kidney function or by taking larger doses than ordered or by self-medication of patent medicines containing bromides. Every mental hospital admits a few such cases every year, psychoses that should have been prevented by administration of bromides only with extreme caution, and the occasional check on the bromine content of the blood. A concentration of 150 milligrams per cent in the blood is the toxic level for most people.

Toxæmia may arise in the body from infections or from toxic thyroids or cardiac decompensation, or from the toxæmias of pregnancy. It may not be correct to say that all these are preventable, but the better they are controlled by early and adequate treatment, the less likelihood there is of the individual becoming mentally ill as an effect of them.

A few words concerning the so-called puerperal psychoses. These unfortunate complications of pregnancy and childbirth may be due to exhaustion, hæmorrhage and septic pelvic or uterine conditions in whole or part. They sometimes occur in entirely uncomplicated easy labours, but when they do one can be sure that there is great emotional stress, not always easily seen. That is, the psychosis may be due to an intoxication, in which case its outcome depends on the outcome of the physical factors. Where the emotional disturbances are strong, the delirium will be either a schizophrenic or a manic-depressive attack. It should be remembered that obstetrical schizophrenias are almost invariably malignant whereas the manic-depressive reactions terminate with complete recovery. It is almost always unwise for such mothers to again incur the risk of pregnancy.

In the second large group, delirious states due to organic brain disease, we have a variety of clinical states. Huntington's chorea, perhaps the only truly inherited mental disease, is preventable only by potentially affected individuals foregoing their right to have children. General paresis, due to syphilis, is preventable by avoidance of sexual promiscuity and the active and complete treatment of all infected persons, in the early stages of the disease. Brain tumours are still as much of a mystery as to etiology as other forms of cancer and at the present time we are helpless in preventing these conditions. Early diagnosis and operative treatment offer the only hope of avoiding extensive brain damage and mental deterioration. Mental symptoms due to trauma are commonly the result of war injuries and motor accidents. We can only hope that the greater use of intelligence may reduce both these hazards to the next generation.

By far the largest representative in this group is the senile-cerebral arteriosclerotic combination. I have already indicated that these groups constitute 25% to 35% of the admissions to mental hospitals in recent years and they are really the only form of mental disease to show a substantial increase, having doubled their incidence in the last thirty years, although this age group has increased itself by only 50%. How to grow old gracefully is our problem. How to care for our arteries, heart and kidneys well when they are young so that they will not let us down when we are old. How to make our neurones and cerebral vessels last longer than our myocardium and coronaries is one of the most challenging clinical puzzles confronting us. There is no virtue or happiness in growing old if we cannot have reasonably good mental health during our senescence. At present all we can say is that a life well-lived, keeping our bodies and minds in healthy action with the avoidance of physical and mental excesses, with hobbies and a satisfying philosophy of life, all these may help. What hormones and vitamins may also do to help is still largely speculation, but there is reason to think that concentrated attention on these and other aspects of geriatrics may greatly reduce the incidence in these later decades. That great centenarian, Sir William Mulock, while still in his

eighties, gave his own opinion of his health vitality in the following quotation—"The castles of enchantment are still ahead of me."

The biogenic deliria are chiefly manic-depressive psychoses and schizophrenic. The former is characterized by states of elation and hyperactivity or depression and inactivity. Schizophrenia (formerly known as dementia praecox) is essentially a disorder of young people, showing disintegration of personality with delusions and hallucinations. So far as we know the biogenic reactions are not dependent on organic brain change or toxic states. Curiously enough these groups, constituting 25% of the admissions to mental hospitals, have nothing wrong with their brains. Like the psychoneuroses—hysteria, neurasthenia, anxiety states, reactive depressions and alcoholic addictions—they are reactions of frail personalities to difficult or insoluble life problems. The frail personality is usually an inherited frailty, poorly trained for life or inadequate for life, overwhelmed by problems too difficult for him to solve. The maniac-depressive conditions tend to spontaneous recovery. Schizophrenia, in spite of the unadoubted value of shock treatment, too often fails to respond.

These conditions are theoretically preventable—the slide shown earlier indicates they are not increasing and perhaps even decreasing. Prevention on a large scale of these disorders, including the psychoneuroses, will depend in the long run on our ability to rear children from mentally healthy parents, to provide the developing child with mental hygiene training so he may develop good mental hygiene habits, to surround him with an environment in which his personality can thrive and to keep him physically fit throughout his lifetime. With wars and economic depressions a large part of the environment for so many years, we have all been handicapped. We can still hope through eugenics, education and statesmanship to ultimately reduce these etiologic factors of these psychoses.

In conclusion let me suggest that better mental health in the public can be achieved by the medical profession through the wider use of mental health clinics, of psychiatric wards in general hospitals, through learning and teaching mental hygiene principles to parents and children, by the school, the church, the press and the radio. We can keep people in better physical health through the use of the annual health examination and thereby make it easier for them to enjoy good mental health. We can work with all other men of good will to make this a world not only fit for heroes to live in but fit for the great mass of average people to live in healthfully, happily, hopefully.

Sex and Calendar Period	AGE									
	0	10	20	30	40	50	60	70	80	
<i>White males</i>										
	Expectation of Life, Years									
1900-1902	48.23	50.59	42.19	34.88	27.74	20.76	14.35	9.03	5.10	
1940	62.94	56.91	47.61	38.64	29.85	21.77	14.86	9.26	5.20	
<i>White females</i>										
1900-1902	51.08	52.15	43.77	36.42	29.17	21.89	15.23	9.59	5.50	
1940	67.31	60.63	51.15	41.98	33.01	24.48	16.75	10.27	5.50	

Year	POPULATION TREND (ONTARIO)				
	Total Population	Per cent under 40	Per cent 40 - 59	60 and over	
				Number	Per cent
1881	1,927,000	79.28	14.56	118,700	6.16
1891	2,114,000	77.67	15.54	152,019	7.10
1901	2,183,000	73.70	17.91	183,220	8.39
1911	2,527,000	72.24	19.26	214,932	8.50
1921	2,934,000	70.32	20.51	269,133	9.17
1931	3,432,000	67.99	12.84	349,108	10.17
1941	3,848,000	64.83	23.39	453,142	11.78

Vancouver General Hospital

FOLLICULAR LYMPHOBLASTOMA A Review of the Literature and Case Report

DR. W. N. BELL

From the Service of DR. S. E. C. TURVEY

Follicular lymphoblastoma, although usually regarded as an interesting rarity, should be considered in any case of generalized lymphadenopathy. Although inherently benign, on occasions it may be malignant. It was first described by Becker in 1901. Brill, Baehr and Rosenthal presented the first American report in 1925 and it was they who first drew attention to its benignancy, although, in a later report, they began to ascribe to the disease a more malignant nature. In 1931, Baehr and Rosenthal outlined the chief characteristics of this disease as follows:

1. Lymphadenopathy, due to hyperplasia of the germinal centres of the lymph follicles.
2. Splenomegaly, due to enormous enlargement of the Malpighian bodies.
3. Absence of abnormal cells in the blood.
4. Absence of anæmia and cachexia.
5. Tendency to development of serous effusions in pleural and peritoneal cavities.
6. Absence of involvement of tonsils and the lymphatic apparatus of the gastrointestinal tract.
7. Tendency to lymphatic infiltration of the lachrymal gland, resulting in unilateral exophthalmos.
8. Multicentric origin, throughout the body, in the lymph follicles.

There are still differences of opinion as to the classification and pathogenesis of follicular lymphoblastoma. Most investigators feel that it is only the early stage of a process terminating in lymphosarcoma, lymphatic leukemia, or Hodgkin's disease. In one series of twenty-five cases, seven terminated as lymphosarcoma, seven as Hodgkin's disease, and four as lymphatic leukemia. Ross calls it a "lymphatic reticulosis," while Symmers believes in an inflammatory or toxic origin. Different diseases of the lymphatic system affect different structural components of the lymph nodes. In follicular lymphoblastoma the germinal centres of the secondary follicles are the point of departure of the pathological process. Hadfield and Garrod in "Recent Advances of Pathology" suggest the following classification:

THE RETICULOSES

Medullary Reticulosis:

- Primary. (a) Undifferentiated.
(b) Hæmic (the Leukæmias").
(c) Fibro-myeloid (Hodgkin's Disease).
(d) Histiocytic.

Metabolic. The Generalised Lipoidoses.

Follicular Reticulosis:

- (a) Lymphoid.
(b) Fibrillary.

Simus Reticulosis:

Primary.

Infective. In typhoid, trypanosomiasis, kala-azar, malaria and secondary syphilis, etc.

The average age of onset in various series of cases was thirty-nine years, being twice as common in males as in females. The average duration is five years although a few cases have been reported alive and well as long as seventeen years after the disease was first discovered. Symmers thinks it is wise to divide all cases into two groups:

1. Those cases in which the hyperplastic follicles in the nodes and spleen maintain their structural identity for months or years or the affected nodes may undergo reduction in size and disappear temporarily for no apparent reason. Again, they may show histological signs of healing irrespective of treatment.
2. Those cases in which the condition alters its course into cases of lymphosarcoma, lymphatic leukæmia, or, rarely, Hodgkin's disease.

In affected nodes the enlarged follicles can be seen with the naked eye. The follicles vary in size and number. The central portions generally consist of larger cells with large, faintly staining nuclei and numerous mitotic figures. These are usually regarded as lymphoblasts but some may be derived from reticulum cells. At the periphery of the follicles lymphocytes are densely packed. No reticulum fibrils are demonstrable in the tissue but there is an increased proliferation of capillaries and endothelial cells. The lymphatic sinuses are compressed. This marked numerical and dimensional increase in the follicles was found to be the most helpful histological method of distinguishing the condition from inflammatory hyperplasia. In the spleen there is a numerical and dimensional increase in the Malpighian bodies. The interfollicular splenic pulp and sinuses are compressed. The follicles tend to fuse and present a studded, greyish, nodular appearance against the purplish-red background. Should the lymph follicles show necrosis they may rupture, giving rise to a thin, clear or slightly cloudy fluid and the resulting sinuses tend to heal slowly.

The disease usually begins insidiously as an enlargement of local lymph nodes, unaccompanied by any feeling of ill-health on the part of the patient. The absence of anæmia or cachexia may lead the unwary into suspecting an inflammatory or toxic agent as the cause of the lymphadenopathy. The lymphadenopathy may be local or general, the cervical group often being the first to be enlarged. In the early stages the nodes are discrete, movable and painless. Later, they are closely packed and appear to be confluent. The nodes may diminish spontaneously in size or may disappear for a time. Gastro-intestinal symptoms, *e.g.*, flatulent dyspepsia, diarrhœa, anorexia or nausea, are fairly common. In one series of cases, splenomegaly occurred in 61%, hydrothorax in 13%, hepatomegaly in 9%, and ascites in 6%. Anæmia, if present, is of the hypochromic type and is not severe. Slight leukopenia may be present. Osseous, cutaneous, pulmonary, genito-urinary, gastro-intestinal and tonsillar involvement have been reported. Some authors recommend that all patients exhibiting chronic eczematoid dermatitis with lymphadenopathy should have a biopsy examination, preferably on the nodes of the cervical region, as this syndrome is frequently amenable to radiation therapy, in small repeated doses, although there is a tendency towards radio-resistancy in succeeding courses. No cases of permanent cure have been reported.

CASE REPORT

Mr. W. N. B., age 42 years.

This patient was first seen by Dr. S. E. C. Turvey on July 10, 1939, when he was referred for a general and neurological examination because of a previously positive Kahn. At that time the physical examination, including full neurological examination, was entirely negative. Lumbar puncture showed 6 cells per c.m.m., protein 40, Kahn negative and colloidal gold of 0000000. A blood Kahn was also negative. He had had adequate treatment, so he was advised to have only annual injections of bismuth for a few years. At that time there were no complaints except an anxiety state about his previous infection, and there was no enlargement of the lymph nodes. He was next seen in September, 1941, for a lumbo-sacral strain. At this time his hæmoglobin was 82%, white cell count 12,900, urinalysis negative, sedimentation rate 31 mm. in an hour, Kahn negative. The differential white cell count showed 72% polymorphs, 22% lymphocytes, and no immature white cells were present in the smear. By November, 1941, he had recovered sufficiently to return to work.

He was seen again on February 14, 1942, when he began to complain of having no pep or energy for the previous three weeks. He said that he was too tired even to read.

He had no actual pains or aches or discomfort but had been sleeping poorly and was very "nervous." He had lost only two pounds in weight in the previous six months. General physical examination was entirely negative at this time. There was no lymphadenopathy. A month later he had gained four pounds, was working steadily and felt much better. By December, 1942, he had injured his back again, had lost twelve pounds and was unable to work.

He was re-examined on January 19, 1943, and at this time there was noticed a generalized enlargement of the lymph glands throughout his body. There was one mass the size of a large egg in the left axilla, a mass the size of a walnut in the left groin, and all the superficial lymphatic glands throughout the entire body were palpable. He said that he had first noticed this himself three weeks ago and both he and his wife were certain that there was no visible or obvious enlargement before that time. The glands were smooth, movable, rubbery and not tender. The spleen was not enlarged. By this time he was fourteen pounds under his usual weight, hæmoglobin was 75%, red cell count was 4,660,000, white cell count 17,900, with 70% polymorphs, 29% eosinophils, and 1% mononuclears. There were no immature white cells. Sedimentation rate was 50 mm. in an hour. Urinalysis was negative. A blood Kahn and cerebrospinal fluid Kahn were entirely normal at this time also.

In January, 1943, a lymph gland was removed for biopsy from the right groin. Dr. H. H. Pitts of the Department of Pathology at the Vancouver General Hospital examined this and his report is as follows:

"The specimen consists of an elongated, fairly firm lymph gland the size of an almond kernel which, on occasion, presents a fairly firm, homogeneous, grayish-white cut surface.

"A number of sections were taken at different levels through the gland and they show a very definite hypertrophy and hyperplasia of the lymphoid follicles, not only in the peripheral portions of the gland but throughout the more central and hilar portions. The cells appear fairly uniform, there is no fibrosis and there is no suggestion of any tubercle formation or metastatic involvement. The pathological diagnosis is follicular lymphoblastoma."

On admission to hospital on January 27, 1943, the patient complained of a dull, constant ache in the epigastrium when he took a deep breath. There were no disturbances in function of the gastro-intestinal tract. On examination there were many rhonchi in the left chest and there was clinical evidence of fluid in the right side. The abdomen was tense and slightly bulged but not tender on palpation. The spleen was not palpable. There was generalized lymphadenopathy, especially on the left side.

An X-ray picture on January 30, 1943, revealed considerable fluid at the right base as high as the fourth interspace anteriorly and extending upward into the axillary line to the level of the third rib. There was also considerable infiltration shown in the lung. Sixty ounces of slightly turbid, serous fluid were removed. Microscopical examination showed "a very large number of all types of leucocytes, with many very large spherical cells, at least five to six times the size of polymorphs, with large nuclei and rather pinkish staining, scanty cytoplasm. They somewhat resemble very large plasma cells but are probably of a mononuclear type and very atypical" (Dr. H. H. Pitts).

During his four weeks' stay in hospital he lost six pounds. On February 1, 1943, the white cell count was 14,800, with 56% polymorphs, 25% staff forms, 29% lymphocytes, 2% monocytes, 6% eosinophils, 1% basophils, 6% disintegrating cells. The hæmoglobin was 70% and sedimentation rate 8/50. Five days later the white cell count was down to 6,700 (following the thoracentesis), composed of 66% polymorphs, 25% lymphocytes.

X-radiation was commenced on February 1, 1943. Between February 1 and February 17, the whole body was exposed anteriorly and posteriorly to doses of 10 "r" units each, up to a total of 100 "r" units, using 200 K.V. and 2.0 mm. of Aluminium. From February 8 to February 12, he was given 1,000 "r" units over the epigastrium at a

daily dose of 200 "r" units, using 200 K.V., 0.5 mm. of Copper and 2.0 mm. of Aluminium.

The patient was discharged from hospital on February 28, 1943, feeling much better. The epigastric distress had disappeared and he felt stronger, although he was still losing weight.

Two days after being discharged, he was readmitted in a very dyspnoëic condition. Despite the removal of 2,000 c.c. of straw-coloured fluid from the chest, the patient died four hours later.

Unfortunately permission for an autopsy could not be obtained.

DISCUSSION

This patient presented typical clinical features of follicular lymphoblastoma. There was the sudden, non-painful, generalized lymphadenopathy and gradual, progressive weakness, appearing in a previously healthy, middle-aged male. The absence of splenomegaly is not unusual. The predominating role played by the pleural effusion is of interest in view of the above figures of its incidence. The absence of any marked degree of anæmia or of any abnormal cells in the blood are quite in keeping with the typical picture.

SUMMARY

1. Follicular lymphoblastoma is an inherently benign, generalized disease of lymph nodes, of indefinite etiology and pathogenesis, sometimes progressing towards a more malignant form.
2. Splenomegaly, hepatomegaly and effusions into serous cavities may occur.
3. An increase in the follicles, both numerical and dimensional, is a constant pathological feature of the disease.
4. The disease is not characterized by the constitutional signs and symptoms such as anæmia, cachexia, marked loss of weight, which are present in the more malignant lymphadenopathies.
5. It affects twice as many males as females and it is very sensitive to small repeated doses of roentgen rays.
6. A case is presented of a middle-aged male with pleural effusion but no splenomegaly.

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3. Combes and Bluefarb—Arch. of Dermat. and Syphilology, 44, Sept., 1941.
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MEETING OF CLINICAL SECTION OF VANCOUVER GENERAL HOSPITAL ON TUESDAY, JANUARY 23rd

A programme of special interest has been planned for the January meeting of the Clinical Section, when Surg. Lieut.-Comdr. M. Digby Leigh, R.C.N.V.R., Consultant in Anæsthesia to the R.C.N., will present a paper on "Pædiatric Anæsthesia." This will be illustrated by a film and lantern slides.

In addition, Dr. C. E. Battle will give a paper on "Modern Conception of the Treatment of Burns," and Dr. G. D. Saxton will present "Some Cases of Extra-pulmonary Tuberculosis," while Dr. Ernest Boxall of the Interne Staff of the General Hospital will give a paper on "Results of the Use of Penicillin in the Vancouver General Hospital."

Vancouver Medical Association

FATIGUE SYNDROME FROM THE USE OF PNEUMATIC TOOLS

E. H. COOKE, M.D.

(Given at meeting of The Vancouver Medical Association, November 7, 1944)

The disabilities arising from occupations in which frequent repetition of movements, constant pressure or repeated shocks are a feature, have long been recognized as occupational hazards.

Bulletin No. 41, issued by the United States Department of Labor, gives a list of 58 occupations which offer such exposure. Blacksmiths, carpenters, hammermen, milkers, polishers, pressers, telegraphers, typists, and lastly, pneumatic tool workers, are a few examples.

The last group is the subject of our paper tonight and is a preliminary statement based on the study and observation of 32 selected cases of the so-called Pneumatic Arm, occurring in the four principal shipyards in Vancouver.

Until recent years little attention has been given to the condition, and references to it in literature are few and far between.

There are several reasons for this indifference in the past:

1. Firstly, the paræsthesiæ, muscular pains and weakness were regarded as functional and designated as an occupational neurosis and forthwith the case lost most of its interest.
2. Then there is a tradition among life-time users of pneumatic tools that more or less discomfort in the upper limbs is inevitable in beginners, but with patience and a correct technique in holding the gun, this usually passes off spontaneously in the course of a few weeks—hence few are encouraged to seek medical relief in the early stages.
3. And lastly, the more susceptible and less persevering among the beginners quit their jobs after a brief trial and so are unlikely to come under skilled observation.

On the other hand, the great increase in shipbuilding on this continent, the "freezing" of workmen to their jobs in the yards, the recognition of these cases as compensable by the Workmen's Compensation Board, and the creation by the Wartime Shipbuilding Limited of an Industrial Health Division under a Medical Director with full-time medical officers in the principal shipyards, have contributed much to the better understanding and therefore prevention of these conditions and industrial hazards generally.

A brief description of the pneumatic tool, or gun or as it is commonly called, as used by the riveter, his mate the holder-on, the caulker, the reamer and the bolter-up will assist us in visualizing these men at work.

The steel plates are swung into position by the platehangers; the bolter-up now temporarily fixes the edges of the plates together by inserting a cold bolt in every other hole and tightening the nut with his impact wrench—a pneumatic tool which weighs about 30 pounds and delivers from 1200 to 1300 blows per minute with 90 pounds of air pressure. The reamer uses a pneumatic gun, designed to align or ream out the opposing holes in the overlapping edges of the plates so that the heated bolts fit easily. It is operated by one or two men who hold on to a cross bar at the butt end of the gun which weighs 28 pounds and the bit revolves 86 times per minute with compressed air at 100 pounds. It is claimed that the arms and shoulder muscles are subjected to considerable jerky vibrations as the bit bites into the metal, and occasionally the workmen are knocked off their feet.

The riveter now mushrooms with his pneumatic gun the end of the red-hot bolt onto the overlapping edges of the plates whilst his partner, the holder-on or bucker-up, supports the head of the bolt on the other side of the plates. The gun used by the riveter and holder-on weighs from 22 to 25 pounds and delivers 1300 blows per minute. It consists of a cylindrical barrel, at the proximal end of which is a hand grip and an attachment for a compressed air hose, also a trigger mechanism for releasing the compressed air which operates a piston rod plunger in the barrel. The plunger is moved to and fro by the compressed air, alternately striking and receding from the end of the dye—a moveable tool of hardened steel, one end of which fits into the distal end of the barrel and is held in place by the gloved hand.

The caulker, who closes the seam between the plates, after the others have done their work, uses a gun somewhat similar to the riveter's but it is lighter in weight and much faster in action. It weighs about 12 pounds and delivers 2000 blows or more per minute.

Our 32 cases fall naturally into five groups: riveters, holders-on, caulkers, reamers and bolters-up, with whom you have already had some acquaintance.

The riveters number 12; holders-on, 8; caulkers, 7; reamers, 3; bolters-up, 2—total, 32.

These figures indicate very roughly the relative frequency of the pneumatic arm in the five groups.

Their ages vary from 20 to 53 years—the majority of the cases occurring between 25 and 50.

The average weight was 164 pounds—the lightest 119 pounds and the heaviest 198 pounds. This observation is mentioned as some workmen believe light weight is a predisposing factor; but we have no proof of this as yet.

The time which elapsed between the commencement of work and the onset of symptoms averaged:

For the riveters, 9 months; holders-on, 12 months; caulkers, 15 months; reamers, 17 months; bolters-up, 10 months.

One of the earliest signs noted in those about to develop the Pneumatic Arm is stiffness and a sensation of tension or swelling in the fingers which may actually be the case. This at first disappears overnight to recur the next working day and may continue so for days without change. Frequently, however, numbness and tingling appear at the tip of one or more fingers, usually the index of one hand, often associated with pallor and coldness. This condition may spread as the days go by to the other fingers, sometimes skipping one finger for no apparent reason, then to the hand and even as far as the elbow but seldom beyond.

There is a subjective sensation of weakness in the limb and all muscle movements are weak, especially in the fingers, wrist and elbow joints.

There is now often definite analgesia of the skin of the fingers, hand and lower one-third of the forearm—occasionally limited to the ulnar or medial distribution. Aching pains extend up the limb, especially along its outer border, and there are tender areas in the muscles, particularly the forearm and region of the external epicondyle and occasionally as remote as the deltoid, scapula and neck muscles.

Muscular cramps not infrequently occur, especially at night, and may be so severe as to keep the patient awake.

This description is taken from our case histories and is typical of average severe cases who have persevered with their work notwithstanding the discomforts entailed.

I would remind you of a few facts in regard to the physiology of the neuro-muscular and vascular systems as I believe these have an important bearing on the evolution of the Pneumatic Arm:

1. All parts of the reflex arc possess the property of excitability; *i.e.*, any part of it may be independently stimulated, resulting in muscular contraction.
2. Voluntary muscle normally contracts to impulses which start in the central nervous system and pass down the efferent nerves to the muscle; but this same

muscle may be caused to contract by other forms of stimuli applied to the muscle itself or its nerve.

3. Such other stimuli are chemical, thermal, electrical or *mechanical*—the latter by pinching the muscle or by a series of carefully graduated taps to the nerve. I suggest that the vibrations of the pneumatic gun, especially that type used by the riveters or caulkers, fulfil the requirements of a mechanical stimulus.

Experiments with the ergograph in men shows that when fatigue sets in after repeated contractures, it is not the muscle which is fatigued but the nerve cells in the cord, since electrical stimulation of the muscle or its nerve through the skin results in powerful contractions.

Physiological experiments indicate that the most readily fatiguable point is the motor nerve cell, next the end plate in the muscle, then the muscle itself, and finally the nerve trunk which is practically unfatiguable. From this it may be inferred that the weakness of certain muscles or group of muscles so frequently present in sufferers with the Pneumatic Arm is at first central rather than peripheral and is the result of fatigue of the nerve cells.

Plain or involuntary muscle, like voluntary muscle, also responds to various stimuli which may be chemical, thermal, electrical or mechanical.

The involuntary muscle of the blood vessel exhibits an automatic tonus and is provided with two sets of nerves from the sympathetic—one set contractor, stimulation of which increases the tonus, and the other set inhibitor or dilator, stimulation of which diminishes the tone of the muscle and permits vaso-dilation.

It is likely that mechanical stimulation of this mechanism by the vibrations of the pneumatic gun is the explanation of the vasomotor disturbances so commonly present in these cases.

Taking all these facts into consideration, it seems probable that in the early stages the Pneumatic Arm is a fatigue syndrome within physiological limits which if long continued may lead to inflammatory reactions or even structural or organic changes of a more or less permanent nature in the neuro-muscular system.

The following are a few examples of end results:

In cases 11, 23 and 25, all riveters, there was marked atrophy and weakness of the thumb muscles in one hand.

Case No. 9, riveter, age 31, consulted us in March, 1943, for coldness and numbness of the thumb and index finger and the radial half of the middle finger of the left arm; also aching pains extending up the limb.

His occupation was changed to shipwright and nineteen months later his condition was as follows: Left forearm $\frac{3}{4}$ inch smaller than the right, numbness of the radial half of the middle finger unchanged, thumb and index finger presented no symptoms except that the latter has a prickly sensation in cold weather. The small muscles of the hand were definitely weak as were the movements at wrist and elbow joints and to a less extent at the shoulder.

Case No. 1, age 39, a typical example of the Pneumatic Arm in a caulker, occurring sixteen months after working daily with the caulking gun. He had well marked vasomotor disturbances in the thumb, index and half the middle fingers of the left hand and index finger of the right hand. These became cold, pale and numb soon after beginning work with the gun. Seen in November, 1944, 21 months after change of occupation to Pipefitter's Helper, the tendency to vaso-spasm was still present, especially in cold weather or if he bathes in the sea. He was very emphatic that he was not so affected before using the caulking gun.

Exciting and Predisposing Causes

Assuming that excessive and prolonged vibration is the prime or exciting cause of the Pneumatic Arm, what are the predisposing factors since all workers with pneumatic tools do not develop this disability?

The following have been brought to our notice:

1. Incorrect technique in holding the gun leading to unnecessary muscular tension and early fatigue.
2. Insufficient support for the arms, especially in overhead and shoulder-high work.
3. Overtime, record breaking and piece work—in all of which there is the temptation to avoid sufficient rest periods.
4. Local trauma of the limb, remote or recent.
5. Local diseases of joints. Raynaud's phenomena.
6. Reduced health from any cause.
7. Overheating and sudden cooling of the body.
8. Excessive cigarette smoking, predisposing to vaso-constriction.
9. Neurotic temperament, particularly when expressed as anxiety.
10. Light weight and poor muscular development.

Diagnosis

As a rule this does not present any serious difficulty when the previous history and the circumstances under which the disability arose are carefully reviewed. Organic nervous disorder and local disease should be excluded and the possibility of a cervical rib or band should not be overlooked, also any liability to Raynaud's disease.

Treatment

In the early stages rapid improvement and disappearance of symptoms may be expected by change of occupation to some kind of work in which muscular strain or vibration is absent; such as burning or welding. Later on, when vaso-motor changes are well established and muscular pains and cramps keep the patient awake at night, complete rest to the limb is the only logical procedure and some would go so far as to treat the case as if it were a fracture of the upper end of the humerus.

Electrical stimulation or deep massage are absolutely contra-indicated, as all such treatments at this stage do more harm than good.

If pains in the limb and muscle cramps are severe, heat from an infra-red lamp is comforting, applied either directly to the skin or with a moist Turkish towel interposed. Sedative massage, such as effleurage, is also permissible if intelligently applied. By effleurage is meant the most superficial form of massage of the skin with the tips of the fingers dipped in warm oil, or, as Dr. Shepley, Director of the Rehabilitation Department of the Workmen's Compensation Board puts it, "massage as gentle as a mother would stroke the head of her new-born baby."

As improvement takes place simple voluntary movements of the limb, deep but controlled massage with warm oil, electric baths with the limb immersed in warm water and cupping over tender areas, particularly if an epicondylitis is present, may be gradually instituted. Return to work should be gradual or fractional, beginning with one-quarter of the working hours and extending to one-half to three-quarters and finally full time. Work should be of the easy type to begin with and heavy only as competence is established.

It goes without saying that a thorough physical examination should be made at the outset—not overlooking some estimate of the psychological make-up of the individual, as this last has an important bearing on the prognosis.

OUT-OF-TOWN MAILING SERVICE

Associate Members of the Vancouver Medical Association throughout the Province are reminded that they may borrow books and journals from the Library at any time. The cost of mailing is of course borne by the member, but this is a negligible consideration now that our special library mailing rate is in effect. According to this arrangement, the return postage is prepaid from this end, and no additional stamps need be affixed when returning books, if the franked label is used. This label will be enclosed in the package or pasted on the reverse side of the wrapper.

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GENITAL PROLAPSE

DR. W. A. SCOTT

(Given at the Vancouver Medical Association Summer School, June, 1944)

So much has been written on the subject of genital prolapse that further discussion would, at first, appear to be superfluous. Nevertheless, it is one of the most important phases in the work of the gynecological specialist, and is certainly the gynecological condition most frequently operated upon by the general practitioner. Most of us believe that no one procedure will suffice for all cases, and I propose to put before you the ideas of our clinic on the various methods of handling the different types of cases.

By whatever method prolapse is treated, it is inevitable that some cases will result in failure. The number of these failures may be reduced by selection of the proper type of operation in a given case. The familiarity and skill of the operator with the procedure adopted is important, but the surgeon should be familiar with several different operative procedures if he is to achieve the best results. There is a tendency for some particular type of operation to predominate at different times in a given clinic. This is partially due to the desire to improve results and to changing enthusiasms, and is only an evidence that no one type of operation is a panacea for all cases. I am aware that there are some operators of great skill and experience that believe that practically all cases can be satisfactorily treated by one type of operation, but it is our opinion that each case should be individualized if we are to achieve the best results. At one time the commonest method of treating prolapse by our staff was an anterior and posterior repair, with an intraabdominal correction of a retroversion, when present, in younger women, and a vaginal hysterectomy in older patients. During the last ten years, however, the Fothergill operation has been the commonest procedure, and no cases are subjected to laparotomy if the only complaint is prolapse and there are no accompanying pelvic lesions. It has become clear to us that if a proper repair of the supporting structures is done an accompanying retroversion will be corrected, if it is of the acquired variety, and will be of no consequence if it is congenital.

The term "genital prolapse" includes urethrocele, cystocele, rectocele, posterior vaginal enterocele, and prolapsus uteri. In most instances there is a combination of two or more of these conditions. In addition, many patients have associated pelvic lesions, such as a diseased cervix, subinvolved uterus, fibroids, or adnexal disease. All prolapses are true hernias, resulting from defects in the fascial supports, and the principles underlying their correction are the same as those which are used in the treatment of hernias elsewhere.

This being true, some discussion of anatomy is necessary. No anatomical subject has had more detailed study, but the result of that study has been obscured by complicated descriptions and a variety of anatomical names for the same structures. The essential knowledge is easily summarized. There are two layers of supporting structures for the pelvic organs. First, and of greatest importance, are the tissues at the base of the broad ligament. These are strong bands of fibro-muscular tissue radiating in a fan-shaped manner from the cervix to the pelvic walls and are called the "cardinal ligaments" or the transverse cervical ligaments of Mackenrodt. They are continuous behind with the utero-sacral ligaments, and in front with the pubo-cervical fascia, and form the real support of the uterus, bladder, and vaginal vault. This support is one continuous layer of fascial tissue which has become condensed where the greatest strain is laid upon it, giving rise to five distinctive structures, namely, the two cardinal ligaments, the two utero-sacral ligaments and the pubo-cervical fascia. At operation, these essential supports are most easily reached in front of the cervix, if the operation is done from below, and at the sides and behind the cervix, if done from above. The weakest point in this supporting structure lies between the cervix and the pubis.

Below this plane of fascial supports, the pelvic outlet is closed by two layers of muscles and their covering fasciæ. The superior layer is composed of the levators ani and the coccygeal muscles, and the inferior layer comprises the muscles of the vulvar

and anal openings. Muscular structures can exert only intermittent support and it follows, therefore, that the permanent or essential supports of the pelvic organs are the fascial structures, while the muscular structures are only accessory. It is the failure to recognize this fact that leads to many unsatisfactory operations. If the essential supports are damaged and not repaired, any operation which utilizes only the muscular structures of the pelvic outlet will be unsatisfactory even if the uterus be removed. Failure to repair the upper layer of structures after removal of the uterus by either the vaginal or abdominal route leaves a potential peritoneal opening through which some viscus will protrude, and find its way through any type of outlet repair short of complete closure of the vagina. If the uterus is not removed and these upper supports are not repaired, a cystocele or rectocele may be cured but the descent of the uterus will still persist. In most cases where there is descent of the uterus the cervix is elongated, and if the uterus is to be retained an amputation of the cervix is indicated.

Occasionally the lower or accessory supports are injured, while the upper supports remain intact. In such cases the vaginal walls descend, carrying with them bladder and rectum, and frequently produce elongation of the cervix but without descent of the uterus. Here a simple repair of the pelvic outlet with amputation of the cervix will give satisfactory results, but many cases of disappointment result from the failure to recognize that the upper supports are also injured and descent of the uterus has already commenced. Occasionally one sees marked elongation of the cervix without descent of the uterus, which may be mistaken for prolapse.

When this elongation is mainly in the supra-vaginal cervix it is usually congenital, but when present in the vaginal portion may be due to injury of the outlet supports while the upper diaphragm remains intact.

One may also point out here that where true prolapse occurs in a nulliparous patient, the possibility of spina bifida should always be kept in mind.

May I now outline our methods of treating the various types of prolapse that may be encountered.

Urethrocele

When the urethra is torn from its supports there is usually some injury to the pubo-cervical fascia of sufficient extent to produce some degree of cystocele. Occasionally, however, the only lesion is urethrocele, and in such cases there is frequently injury to the sphincter of the urethra with resulting incontinence on straining. Various types of operation have been proposed for dealing with this stress incontinence. In most cases to expose the base of the bladder and tighten up the bladder sphincter before repairing the fascial structures below the urethra is sufficient, but in those cases where there is no cystocele an attempt must be made to expose and repair the urethrocesphincter.

Cystocele

This may exist alone but is usually accompanied by some prolapse of the uterus. It may follow spontaneous delivery, particularly in the elderly primipara, but most frequently is the result of instrumental delivery before the cervix is completely dilated.

The simple precaution of always passing a catheter before the head descends beyond the mid-pelvis will prevent many cases of cystocele that might otherwise occur. Immediate repair of damage to the pubo-cervical fascia can seldom be carried out. Proper postpartum care, however, even where the fascia has been injured, reduces the incidence of subsequent cystocele.

In the repair of cystocele two principles are to be kept in mind: the elevation of the bladder on the cervix, and the repair of the pubo-cervical fascia and its attachment high up on the cervix. If this is accompanied by reefing of the parametrial tissues in front of the cervix many retroversions will be corrected. If the patient is beyond the child-bearing age and the cystocele is large, the interposition of the uterus under the bladder, or the removal of the uterus and the interposition of the broad ligament in the same position is often a satisfactory type of operation. It has not, however, been performed frequently on our service. This may have been because our cases were poorly chosen, but we had several instances of bladder irritation following the operation and saw two

cases which had been operated upon elsewhere in which the interposed uterus and bladder subsequently prolapsed. In place of this operation we treated suitable cases by vaginal hysterectomy and interposition of the broad ligaments. Whatever operation is done for the cure of cystocele the tissues must be united to fixed points. The posterior repair should extend up above the perineal body, often to the cervix. When patients with large cystoceles first come under observation the vaginal walls are frequently thickening, œdematous, and sometimes ulcerated. It is important to keep such patients in bed until the prolapse is reduced and the tissues are healthy if we are to obtain proper healing. Nearly all these cases also require perineorrhaphy, and there are nearly as many different methods of repairing the perineum as there are operators.

Posterior Vaginal Enterocele

Prolapse of intestine through a hernial opening behind the cervix and between the two utero-sacral ligaments is probably more frequent than is usually recognized. It is often accompanied by other types of prolapse, but if unrecognized and undealt with, any operation for cure of rectocele or prolapse of the uterus would be unsatisfactory. In dealing with these cases we expose and open the sac and reduce its contents. The sac is then resected and the hernial opening closed by approximating the two utero-sacral ligaments. Whether excision of the sac is necessary is debatable, but unless the sac is opened it is difficult to get a proper apposition of the utero-sacral ligaments.

Descent of the Uterus

In the treatment of procidentia two types of patients must be considered. First, women in the child-bearing age, and secondly, those past that period. During the child-bearing age the "Fothergill" operation is usually the one of choice. This consists of shortening the cardinal ligaments by bringing them together in front of the cervix, followed by a proper repair of the pelvic diaphragm. When the cervix is elongated or hypertrophied it is amputated. Many uncomplicated retroversions are corrected by this operation, but where there is accompanying intra-pelvic pathology a laparotomy is indicated unless it can be dealt with by vaginal hysterectomy. Occasionally a retroverted uterus is sub-involuted and heavy, yet we may not feel that its removal is indicated. In such cases an intra-abdominal correction of the retroversion may be necessary, but this operation is being performed on our service much less frequently than in the past.

In the patient who is beyond the child-bearing age, or in whom further child-bearing is not desirable, uterine prolapse may be dealt with by combined vaginal and abdominal operations, or by vaginal operation alone. In the absence of any other pelvic pathology it is our opinion that the combined operation is rarely required to cure a prolapse. In the few cases where it is indicated, and particularly where the body of the uterus is removed, care should be exercised to see that the cervical stump is well supported from inside. The majority of our cases, however, are treated either by Fothergill operations or by vaginal hysterectomy. The latter was the operation of choice in this group of patients for some years, but lately has been superseded more and more by the Fothergill operation. Vaginal hysterectomy, however, still has an important place in the treatment of prolapse, and it removes an organ which may give rise to trouble later on.

Our technique in this operation has varied slightly at times but the avoidance of unfavourable results depends on some method of firmly anchoring the vault of the vagina to the endo-pelvic fascia, and providing firm fascial support for the bladder and rectum. It is usually performed by opening the anterior fornix, turning out the fundus and severing the broad ligaments from above downward. The blood vessels are secured by independent ligatures rather than depending on continuous sutures. The utero-sacral ligaments are firmly attached to the vault of the vagina. The occlusion of dead spaces is carefully carried out; the staff is about evenly divided as to whether or not a small drainage tube should be inserted.

Many of our vaginal hysterectomies are done under local anæsthesia. It lessens the bleeding and makes dissection easy. When general anæsthesia is employed the injection of $\frac{1}{2}$ cc. of Pituitary Extract into the parametrium on either side of the cervix reduces the bleeding.

The Le Fort operation has a limited application, but in elderly patients who are poor operative risks, and particularly in the elderly widow, it has considerable advantage. It is easy to perform, subjects the patient to very little shock, can be readily done under local anæsthesia, and gives good results.

You will see, therefore, that in our hands, the tendency is toward the vaginal approach in the great majority of our patients, with abdominal operations reserved for younger women whose retroversion cannot be corrected per vaginam, or for patients with other pelvic pathology. We do not believe in the routine use of any one operative procedure, and stress the importance of repair of the essential supporting tissues in the parametrium.

HEART DISEASE IN PREGNANCY

DR. W. A. SCOTT

(Given at the Vancouver Medical Association Summer School, June, 1944)

Heart disease in a pregnant woman is always a complication causing anxiety. Rheumatic heart disease is the commonest type, and mitral stenosis is the usual evidence of its presence. It is a progressive disease which has usually begun during childhood or early adolescence, and results in a damaged myocardium, the extent of which is often difficult to estimate. It is frequently impossible to judge whether a heart has the functional capacity to stand the strain of pregnancy and of parturition. During pregnancy an additional strain is put upon the heart, whether that organ be normal or diseased. The blood volume is increased; the mother gains additional body weight, to which is added the weight of the pregnancy; changes in the maternal metabolism influence the cardiac capacity, and the upward displacement of the diaphragm decreases the vital capacity and displaces the apex of the heart outwards. These factors are mostly beyond control, and may in themselves prove too great a burden for a diseased heart to bear. The strain of pregnancy on the heart is then climaxed by the physical effort of labour.

Although the strain of pregnancy can not be avoided, it may be minimized by removing other sources of physical strain or by complete rest in bed. It is evident, therefore, that the progress through pregnancy of a patient with rheumatic heart disease depends not only on the ability of the heart, but also upon the patient's opportunities for rest. In other words, the social and economic status of the patient is of very great importance when considering the advisability of a contemplated pregnancy, or in the management of an already existing one.

Heart disease is often erroneously diagnosed during pregnancy. Gemmeltoft studied 239 healthy pregnant women and found that during the final two months 16.3% of them showed signs suggestive of cardiac disease. These signs were—a rapid pulse, extra systoles, venous pulsation or systolic or diastolic murmurs at the base. In no instance could these be detected four weeks after delivery. De Lee says that in a routine examination of the hearts of pregnant women he found, in many cases, systolic murmurs at the base and accentuation of the second aortic sound, and occasionally a presystolic murmur with displacement of the apex beat to the left. This difficulty in differentiating between functional and organic heart disease stresses the importance of a careful physical examination early in pregnancy when repeated examinations of the heart may be made in doubtful cases. Not only may the presence of organic disease be incorrectly diagnosed, but the contrary may be true, and it may be overlooked if the patient has not had the proper antenatal attention. Many patients with organic heart disease may go through labour without difficulty, while in others this disease may account for sudden death during labour or in the early puerperium. An instance of such an undiagnosed case is that of one of our patients. She was 33 years of age and had not been under our antenatal care. She was in labour for the fourth time and was sent into the hospital because of a two-day labour outside. She had a normal delivery of a live baby shortly

after admission, followed by normal convalescence. Two months later she was sent to the gynæcological department for treatment of a retroversion, when a diagnosis of cardiac hypertrophy and chronic endocarditis was made. At that time the patient gave a history of shortness of breath and palpitation for two years; œdema of the feet and ankles had been present for about a week.

In the past it has been generally accepted that women with heart disease who go through pregnancy and labour tend to develop decompensation and die sooner than other patients with the same disease. This view is open to some doubt. Reid made a study of this question and came to the conclusion that the statistics supported his clinical impression that "women with rheumatic heart disease die before their time, in fact, during the child-bearing period, not because of marriage and pregnancy, but on account of the natural evolution of this disease." He thinks that the status of the unmarried woman with heart disease is much closer than is usually taught to that of the male cardiac patient who is contemplating marriage. In a previous paper Dr. Nelson Henderson and I analyzed 56 postmortem cases of rheumatic heart disease. The average age at death of male patients was 38.7 years, and of the female cases 36.4 years. For female patients who had had more than one pregnancy the average age of death was 40 years, while that for the nulliparous group was 30 years. We do not argue from these figures that child-bearing tends to prolong the life of such patients, because they simply illustrate that the longer a married woman with rheumatic heart disease lives, the more children she will probably bear, but they do tend to show that pregnancy does not affect to any great extent the age of death in a series of cases. The prime factor determining the length of life of patients with this disease is the extent of the myocardial damage and the frequency of exacerbations of rheumatic infection. If the damage is excessive the patients die before they marry or have any children; if the damage is slight death occurs later and more pregnancies occur during the longer life. We acknowledge, however, that it is possible that these parous parents with an average age of death of 40 years might have lived longer if they had had no children. In this connection it is found that a large proportion of patients with rheumatic heart disease develop some degree of failure during pregnancy or have their symptoms aggravated shortly after delivery.

Although rheumatic heart disease as evidenced by mitral stenosis is the commonest serious lesion, a word might be said about the usually neglected simple mitral regurgitation. I believe this is the only heart lesion that still leaves the patient eligible for life insurance. Nevertheless, life insurance statistics show that men under 40 suffering from mitral regurgitation have a mortality rate between two and three times normal. Women with the same lesion show a relatively greater increase in the mortality rate than men, but this is not marked until after the age of 40. Such figures make it evident that even simple mitral regurgitation is worthy of study in a pregnant patient.

The relative risk of pregnancy in cardiac patients is difficult to estimate. Nearly 20% of maternal deaths at the Boston Lying-In Hospital at one time were due to heart disease, with only about 1% of all pregnant patients having severely injured hearts. In the same hospital in 207 cases of rheumatic heart disease there was a mortality of 8.5%. After the institution of a combined Cardiac-Obstetrical Service this rate was reduced to 3.8%. Previous to the institution of a combined Cardiac-Obstetrical Service at the Toronto General Hospital in a series reported by Dr. W. B. Hendry there was a mortality rate of 8.9%. In the first 41 cases after the institution of this Service there was only one death, or a rate of 2.3%, and since then in a series of 73 cases there were two deaths, giving a mortality rate since the institution of the service of 2.6%. One patient died on her 64th day of multiple infarcts and bronchial pneumonia; the second patient died on the third day of cerebral embolus. In addition, one patient had a pulmonary embolus at home before delivery but made a good recovery, and one patient had a pulmonary embolus following delivery and was in hospital for 139 days, but recovered.

Since the institution of this special service all cases of suspected heart disease discovered in the antenatal clinic are referred to a special clinic where they are seen by a cardiologist and an obstetrician. The cases that have no organic lesion are referred

back to the ordinary antenatal clinic, but the other cases are followed throughout their pregnancy by both an obstetrician and a cardiologist. At the time of labour a staff anæsthetist is in attendance and the conduct of labour is supervised by the obstetrician who has followed the case. As a result of this routine the incidence of caesarean section has been markedly reduced, and, in this last series of 73 cardiac cases only two sections were done. As already pointed out, this has not led to an increased mortality, but the contrary is true. In this series of 73 cases the methods of delivery were the following:

Forceps	42	Breech	3
Spontaneous	26	Caesarean	2

Of the caesareans, one was a Porro section in a patient with toxæmia who died, and the second was a classical section in a patient who had had a previous section for contracted pelvis. The duration of labour has some interest. There were 11 patients in whom the duration of labour was over 18 hours, the longest being 60 hours, and there were 37 patients in whom the total duration of labour was less than 12 hours.

We recognize that in private practice the constant supervision of a cardiac patient throughout her pregnancy by both an obstetrician and a cardiologist is difficult, but an attempt should be made to approach the ideal, and the opinion of the cardiologist regarding the method of delivery should not be the final decision unless he has had a considerable experience in this particular combination of conditions.

Dogmatic rules cannot be laid down regarding the management of obstetrical patients with heart disease, but certain general principles may be considered. Let us consider them during pregnancy, during labour, and during the puerperium.

During Pregnancy

The economic status of the patient will have much to do with our general advice. In the case of the well-to-do, rigid restrictions regarding household duties, exercise, and freedom from domestic anxiety may be carried out at home. The poor patient should be sent to hospital as soon as it becomes evident that she can not take sufficient rest at home. However, the great middle class of our people constitute the most difficult problem. Their resources will not provide sufficient help in the home, nor can they meet the expense of prolonged hospitalization except in the public ward, where they will not go. It is in this class of patients that most pregnancies are terminated which, under other circumstances, might have been carried to term. Although physical rest is the principal factor in treatment, the importance of avoiding intercurrent respiratory infections is to be remembered. Impending failure demands complete rest in bed until the time of delivery. If actual failure supervenes, it, and not the pregnancy, must be treated. No attempt at delivery should ever be made during failure if the patient is not in labour. Many such patients go into premature labour and deliver themselves with little trouble. In the others, if the medical measures will not overcome the failure, attempts to empty the uterus are almost certain to prove fatal. Whether or not all cardiac cases should be given digitalis towards the end of pregnancy is still an undecided question. The diet of pregnant women with rheumatic heart disease should be modified to some extent. The physiologic increase in weight occurring during pregnancy, particularly if the increase is excessive or the patient obese, should be controlled by suitable restriction of diet, especially by restriction of the fats and carbohydrates.

During Labour

If there is no obstetrical complication I believe that vaginal delivery is best, and in few instances, especially in multiparæ, is caesarean section indicated. Many of these patients should be sterilized to prevent future pregnancies, but the need for sterilization is not an indication for caesarean section, because the dangers of section are considerably greater than those of simple tubal resection in a non-pregnant woman. It is seldom that any large series of caesarean sections shows a mortality below 3.5%, yet the operation for sterilization should not be one-third of this. In a cardiac patient sterilization can be done after the heart has fully recovered from the additional strain of pregnancy.

The factors causing strain during labour are pain and anxiety, loss of sleep, lack of food, and muscular work. Pain should be relieved during the first stage, preferably by the use of heroin alone or in combination with one of the barbiturates. Where experience and facilities are available, caudal analgesia would appear to offer great advantages, but as yet we have had little experience with this, as our total number of cases is only about 50, and none of them have been cardiac patients. Caudal analgesia entirely abolishes the bearing-down efforts of the second stage, and where it is not available these efforts should be abolished by general anæsthesia and forceps delivery. Dehydration and starvation are prevented by the administration of fluids and glucose, either by mouth or intravenously. If caudal analgesia is used, the patient may be given any food that is desired by mouth, as the motility of the gastro-intestinal tract is not interfered with, and an inhalation anæsthesia is not given. Where inhalation anæsthesia is necessary, the safest one is ether, and if cyanosis is present oxygen should be administered with it.

During Puerperium

It is not unusual for a patient to go through pregnancy and labour without failure only to develop it during the puerperium. All cardiac patients should remain in bed for at least three weeks, and many of them for much longer periods. After she is out of bed ample unbroken sleep is essential, and this means that nursing at night is omitted. All cases with severe symptoms should not nurse their babies. After the patient is out of bed her physical efforts should still be limited. It is probable that the caring for children by patients with cardiac disease is more important a factor in shortening life than bearing them.

The question of future pregnancies is one to be carefully considered. If there has been threatened or actual failure no further pregnancies should be contemplated. The same is true if economic conditions do not allow for proper assistance in the home. One child well brought up, with a mother living to the age of 40, is better than three children improperly looked after, with the death of the mother years before this age. The prevention of future pregnancies may be carried out by means of proper contraceptive advice where the parents are intelligent and co-operative, but in other cases sterilization should be done.

I have said nothing about the termination of pregnancy because of heart disease for, if the patient has been properly advised, before and during her pregnancy, this is seldom indicated. Where there has previously been congestive failure, and in patients with present or recent rheumatic fever, pregnancy should be terminated early. As future pregnancies are undesirable this is best done by supravaginal hysterectomy.

ECTOPIC GESTATION

DR. W. A. SCOTT

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There is an old story about the professor of gynæcology who had a flair for the dramatic. At one period of his course he would wait until the class was assembled in their seats and silence reigned in the lecture room. He would then pick up a large book and bring it down on the desk with a bang, after which he would begin his lecture on ectopic gestation with the words "All of a sudden." This was dramatic, but highly fallacious. Only a small proportion of ectopic gestations begin suddenly, and, indeed, the majority of patients by the time they reach the operating table have had no very acute symptoms. Of those that reach the surgeon in a state of shock, where he who runs can make the diagnosis, the majority have had premonitory symptoms which might have indicated the diagnosis for some considerable time. This paper is an analysis of the clinical features of ectopic gestation as we have seen them over the last seven years with the idea of indicating the findings which help the diagnosis.

Ectopic pregnancy is the implantation of a fertilized ovum some place other than the cavity of the uterus. By far the commonest site is the fallopian tube, but implantation may occur in the ovary or in the peritoneal cavity. We have had two cases of primary ovarian pregnancy which fulfilled all the criteria for diagnosis. In abdominal pregnancies it is difficult in most instances to determine whether the abdominal implantation was primary or secondary. We have had six cases of abdominal pregnancy, in two of which live babies were obtained by laparotomy, and one of these cases we believe to have been secondary to an ovarian pregnancy. There were two deaths in the six cases of abdominal pregnancy. Ectopic implantation of a fertilized ovum usually leads to acute abdominal catastrophe which jeopardizes the patient's life, but this is not always true. Occasionally hæmorrhage occurs round the ovum, leading to its separation and death with no very acute symptoms. Such death of the ovum in the tube is called tubal mole.

The incidence of ectopic gestation is difficult to ascertain. It has been estimated by Schumann as 1 in 300 pregnancies, but in any gynæcological service the condition is frequently encountered because patients are immediately sent to hospital when the diagnosis is made.

ECTOPIC PREGNANCIES — 1937-1943 INCLUSIVE

Total admissions	7,063	
Total number ectopic pregnancies	152	— 2.2%
Number diagnosed correctly pre-operatively	131	— 86.2%
Number diagnosed incorrectly pre-operatively	21	— 13.8%

AGE

Total cases	152	
19 and under	2	— 1.3%
20 — 24	31	— 20.3%
25 — 29	45	— 29.6%
30 — 34	39	— 25.6%
35 — 39	29	— 19.1%
40 and over	6	— 3.9%

Youngest—18 years; oldest—45 years.

The commonest etiological factor in tubal pregnancy is a previous salpingitis, not sufficiently severe to completely close the tubes, but resulting in adhesions between the folds of the tubal mucosa. One-third of our cases present evidence of this type of salpingitis. This is the reason for the commonly observed findings of a period of relative sterility preceding tubal pregnancy. Thirteen of our cases had had a previous ectopic pregnancy, and in one instance the patient had three successive instances of this condition, the first occurring in the ampulla of the right tube; a portion of the tube was left at operation: the second ectopic occurred in the other tube, and the third ectopic in the portion of the tube left at the first operation.

ECTOPIC PREGNANCY — PREVIOUS ABDOMINAL OPERATIONS

Total cases	152
Previous Abdominal Operations	33
One previous abdominal operation	28
Salpingo-oophorectomy	12
Appendectomy	10
Cholecystectomy	2
Caesarean section	1
Appendectomy and cholecystectomy	1
Appendectomy and nephrectomy	1
Appendectomy and salpingo-oophorectomy	1
Two previous abdominal operations	5
Appendectomy and salpingo-oophorectomy	3
Removal of ovarian cyst and salpingo-oophorectomy	1
Drainage of appendiceal abscess and appendectomy	1

Tubal pregnancy may terminate in one of three ways: by tubal abortion, by tubal rupture, or with formation of a tubal mole. With rupture of the tube and with tubal abortion the pregnancy may become a secondary abdominal pregnancy. With all three methods of termination some peritoneal bleeding occurs, but this is more severe with

tubal abortion or tubal rupture. It may be slight, continuous hæmorrhage, with periods of mild exacerbation leading to the formation of a pelvic hæmatocele, or it may be a sudden, severe hæmorrhage. In a series of 102 consecutive cases on our service, 37 had severe internal hæmorrhage, 24 being due to rupture of the tube and 13 to tubal abortion. Clinical symptoms of ectopic pregnancy largely depend on the amount of internal bleeding. Severe hæmorrhage results in sudden pain and collapse: prolonged slight bleeding causes less severe pain, no collapse, but usually varying degrees of anæmia. Some vaginal bleeding is a common symptom, but in ten patients of our series this was not present. It has been our experience that in about half the cases there is no definite history of a missed period, the vaginal bleeding occurring at the time of, or before, the expected period, for which it is frequently mistaken. When vaginal bleeding is present it is usually slight in amount, but profuse uterine bleeding does not rule out an extra-uterine pregnancy. We frequently see bleeding severe enough to suggest an abortion of an intrauterine pregnancy, and the passing of a decidual cast would further complicate the diagnosis. When this occurs, careful examination of the gross specimen will often reveal the presence of the two uterine openings of the fallopian tube, and a microscopic examination reveal the absence of chorionic villi.

Pain is an almost constant symptom, but varies greatly in intensity. It is usually crampy in nature and may be more marked on the side of the ectopic, although it is frequently present across the whole lower abdomen. Pain in the shoulder region is an evidence of extensive intraperitoneal hæmorrhage. The association of faintness or actual collapse is of great diagnostic importance.

ECTOPIC PREGNANCIES — SYMPTOMS

Total cases	152
No vaginal bleeding of any kind	10
No pain	3
Nausea	41
Vomiting	33
Faintness	29
Shoulder tip pain	27
Fainted	27
Weakness	21
Abdominal distension	6
Diarrhœa	6
Pain on bowel movements	6
Frequency	5
Dysuria	3
Constipation	3
Low back pain	3
Mass in the abdomen	2
Chest pain on breathing	2
Shortness of breath	1
Thirst	1

On abdominal examination there is nearly always considerable tenderness, although this is occasionally only present on deep pressure over the site of the pregnancy. Rebound tenderness and hyperæsthesia of the skin of the abdominal wall is common when the bleeding is extensive. Shifting dullness can sometimes be demonstrated when the intraperitoneal hæmorrhage is profuse. Abdominal rigidity is not common, but a characteristic doughy sensation on palpation, with varying degrees of distension, is usually found when the hæmorrhage is large.

On pelvic examination there are two important findings—tenderness and the presence of an adnexal mass, most frequently found in the pouch of Douglas. The tenderness may be confined to the side of the ectopic, but occasionally involves all the pelvis and can best be elicited by moving the cervix or uterus. A mass can be palpated in the pelvis in about 75% of all cases, and when this mass is large it is usually situated in the posterior fornix and may rise above the pelvic brim. The uterus is then pushed forward and lifted up in the pelvis, and it is often difficult to distinguish it from the mass. When the mass is small it is usually felt in one or other fornix.

Examination under anæsthesia is sometimes of value, but in many instances more accurate findings are made without an anæsthetic. A tubal pregnancy is often small, soft, and indefinite in outline, and even under an anæsthetic, impossible to palpate. Without an anæsthetic the tenderness is elicited, and it has been my experience that I could sometimes palpate a mass without anæsthesia that I was unable to feel when the patient was asleep. When the diagnosis is in doubt a posterior colpotomy is of great value. This may be done by means of a needle puncture, and often without anæsthesia. A speculum is inserted into the vagina, the posterior tip of the cervix is grasped with a tenaculum, the vagina is then prepared antiseptically, and a large-bore needle introduced through the posterior vaginal wall and carried upward posterior to the cervix into the peritoneal cavity. The point of the needle should be carried well up into the pelvic cavity and suction then made on the attached syringe. The needle is then slightly withdrawn. If the hæmorrhage is slight no blood will be obtained at the start, but as the point of the needle reaches the pouch of Douglas some dark blood will be obtained. By this method a minimal pelvic hæmorrhage may be demonstrated which might be obscured by doing the ordinary posterior colpotomy, during which there is always some bleeding from the incised tissue. It is to be remembered, however, that ectopic pregnancy may be present with no demonstrable intraperitoneal hæmorrhage, and in such cases the colpotomy incision with the insertion of a finger will allow palpation of the tubes.

POSTERIOR NEEDLE PUNCTURES AND POSTERIOR COLPOTOMIES

Total number of ectopic pregnancies.....	152
<i>Posterior Needle Punctures</i>	
Without anæsthesia	24
Blood obtained and blood present in peritoneal cavity.....	23
No blood obtained and blood present in peritoneal cavity.....	1
Under anæsthesia	6
Blood obtained and blood present in peritoneal cavity in all.	
<i>Posterior Colpotomies under Anæsthesia</i>	
Blood obtained and present in peritoneal cavity.....	47
No blood obtained and blood present in peritoneal cavity.....	3

A rise of temperature is of little value in diagnosis.

TEMPERATURE ON ADMISSION

Total cases.....	153
98° and below.....	19 — 12.4%
98.2° — 99° (inclusive)	57 — 37.2%
99.2° — 100° (inclusive)	63 — 41.2%
100.2° — 101° (inclusive)	10 — 6.5%
Over 101°	4 — 2.6%

In 76 of our cases the temperature on admission was not above 99°, and in only four was it over 101°. The remainder had admission temperatures of 99.2° to 101°. A high temperature may be accounted for in two ways. First, there may have been slow bleeding for some considerable time with secondary infection of the hæmatosalpinx; secondly, the patient may have suspected that she was pregnant and have attempted to produce an abortion by mechanical means, resulting in pelvic infectoin. In the latter case when the temperature is high the hæmatocele may be mistaken for a pelvic abscess, but needle puncture or colpotomy will make the diagnosis clear.

A raised white blood count is usually present, but in nearly half of our cases was not over 10,000.

WHITE BLOOD COUNT

Total cases.....	150
10.0 and below.....	70 — 47%
10.1 — 12.0	19 — 12.6%
12.1 — 14.0	10 — 6.6%
14.1 — 16.0	16 — 10.6%
16.1 — 18.0	16 — 10.6%
Over 18.0	19 — 12.8%

The sedimentation rate is usually more rapid than normal, but where greatly accelerated is usually an evidence of secondary infection.

SEDIMENTATION TIME

Total cases.....	129	
Below 30 minutes	11	8.5%
30 — 39 minutes	9	7.0%
40 — 49 minutes	14	10.8%
50 — 59 minutes	9	7.0%
60 minutes and over.....	86	66.6%

PULSE

Total cases.....	152	
60 - 78	22	15.5%
80 — 98	74	51.0%
100 — 118	34	20.2%
120 — 138	15	10.0%
140 and over.....	5	3.3%

No pulse could be obtained in two cases.

HAEMOGLOBIN

Total cases.....	146	
40 and below.....	9	6.7%
41 — 50	14	9.6%
51 — 60	28	19.2%
61 — 70	46	31.5%
71 — 80	30	20.5%
Over 80	19	13.0%
Ectopic pregnancies	152	
A.Z. tests done	25	
Positive	22	
Negative	3	

The value of an A.Z. test in diagnosis of ectopic pregnancy is not great. Where the differential diagnosis lies between inflammatory disease and ectopic pregnancy it may be of value. A positive A.Z. test, however, is simply an evidence of pregnancy, and does not tell us where the pregnancy is situated. A patient with an old inflammatory lesion and an intrauterine pregnancy will give a positive test. If she is threatening to abort a positive test may actually obscure the diagnosis. A negative test is simply an evidence that no living pregnancy exists, but it does not rule out tubal mole with a dead ovum.

ASCHHEIM-ZONDEK TEST

This presented data may be of interest, but it is obvious that none of it is conclusive except, possibly, the demonstration of free blood in the peritoneal cavity. What, then, are the points that will increase the number of correct diagnoses of ectopic gestation before reaching the tragic state? First, and of most importance, one should suspect it. An accurate history is often of great value, but the difficulty of getting a complete and trustworthy menstrual history is great. It is a constant source of surprise that a large number of otherwise intelligent women appear to be in almost complete ignorance of their own menstrual cycle. In addition, many women are constantly irregular in their periods, to which is added the fact that the vaginal bleeding so frequently associated with ectopic gestation is mistaken for a menstrual period. Lastly, some patients deliberately attempt to deceive the clinician. They suspect that they are pregnant and have no idea that the pregnancy can be any place except in the uterus. They hope that with a false history a curettage may be done.

Diagnosis is further complicated by the similarity of this to other conditions, and particularly to an abortion. Ectopic gestation can simulate any type of abortion, threatened, inevitable, incomplete, complete, or septic. Whenever the possibility of abortion enters the clinician's mind the idea of an ectopic should also be present. Pelvic inflammation of a subacute or chronic variety may also make for difficulty in diagnosis.

The presence of a positive gonococcal infection of the lower genitals does not, however, rule out an ectopic gestation any more than it rules out acute appendicitis.

The findings of greatest positive value are: pain, which may be slight; pelvic tenderness, particularly marked on moving the cervix or uterus; the presence of a soft, tender, often indefinite, mass in the pelvis; and the demonstration of blood by posterior colpotomy.

In treatment, blood transfusions are of the greatest value in all serious cases of ectopic pregnancy. In a seriously ill patient a transfusion is started immediately on admission, and if she is in severe shock we wait until her condition improves, when operation is immediately undertaken. Few, if any, patients suffering from hæmorrhage shock fail to improve temporarily under the administration of morphine and transfusion, and we do not like to operate on a collapsed patient. Except in cases with very little intraperitoneal hæmorrhage, operation is limited to the removal of the affected tube. Free blood clots should be removed with a minimum waste of time. The ovary of the affected side should be preserved if at all possible, but the tube on that side should be completely removed.

We had two deaths in 152 cases. The first case, a patient 35 years of age, was admitted to surgery with acute abdominal pain. She was two weeks beyond her expected menstrual period and had slight red vaginal bleeding. For two weeks she had had crampy lower abdominal pain, and 24 hours before admission became distended and vomited. On admission she was extremely ill with pulse 140, temperature 101°, and abdomen markedly distended and tender. On pelvic examination the uterus was slightly enlarged with a large tender mass in the right fornix. A diagnosis of septic abortion with tubo-ovarian mass was made, and she was transferred to our service. This diagnosis was concurred in here. She was transfused, but died three days after admission, and the correct diagnosis was made at autopsy. This death was directly due to our lack of diagnostic acumen.

The second patient was 21 years of age and was admitted with a history suggestive of ectopic pregnancy. Her general condition was good. There was no abdominal tenderness or distension, and no palpable pelvic mass. A posterior colpotomy was done and no blood obtained. One hour after being returned to bed she became shocked and obviously had a severe intraperitoneal hæmorrhage. Transfusion was given and laparotomy done. A recently ruptured ectopic pregnancy was found. Temperature rose to 103° on the second day post-operatively, and she developed pulmonary œdema and died.

NEWS AND NOTES

We regret to record the passing of Dr. M. G. Archibald on December 24th, and Dr. James Franckum on December 12th. Dr. Archibald was well known in the profession, having practised in Kamloops for many years. Dr. Franckum practised at Blaine, Wm. for a number of years.

* * * *

Sympathy is extended to Dr. B. de F. Boyce of Kelowna in the loss of his wife, and to Dr. G. H. Clement of Vancouver in the loss of his mother.

* * * *

Congratulations are extended to Dr. and Mrs. Victor Drach of Vancouver on the birth of a daughter on January 5th.

* * * *

Two British Columbia doctors have been decorated for meritorious service. Major J. L. M. Anderson, R.C.A.M.C., of Victoria, has received the M.B.E. for service in Italy. Capt. W. S. Huckvale, R.C.A.M.C., formerly of Kimberly, and at present in Vancouver, has been awarded the Military Cross. Capt. Huckvale served in Normandy.

* * * *

Congratulations are extended to the following Officers who have received promotions recently: Surgeon Lieut.-Commander D. M. Whitelaw, Act. Surgeon Lieut.-Commander Murdo McRitchie, Act. Surgeon Lieut.-Commander A. G. MacKinnon, and Act. Surgeon Lieut.-Commander E. W. Wylde.

* * * *

Dr. Saul Bonnell of Vancouver was married to Miss Edith Hanbury on December 27.

Major Fred H. Bonnell, R.C.A.M.C., was in Vancouver and Victoria recently on thirty days' leave after five years' service overseas.

* * * *

Surgeon-Lieut. W. S. Archibald, R.C.N.V.R., arrived home in December, just two weeks prior to the death of his father, Dr. M. G. Archibald of Kamloops. Surgeon-Lieut. Archibald had been on loan to the R.C.N. and latterly was on duty at a Canadian Naval Hospital in Scotland. He is being posted for duty on the Pacific Coast.

* * * *

Dr. R. W. Irving of Kamloops spent the Christmas holidays in Toronto and other Eastern points visiting relatives and friends.

* * * *

Dr. D. B. Collison has returned from service overseas in the R.C.A.M.C., and will resume practice in Vancouver shortly.

* * * *

Dr. J. W. Vosburgh of Princeton called at the office when in Vancouver recently.

* * * *

Dr. S. Z. Bennett of Salmon Arm called at the office.

* * * *

Dr. P. L. Straith of Courtenay is having a holiday in California.

* * * *

Dr. J. H. MacDermot of Vancouver is spending a short holiday in Victoria.

* * * *

Dr. and Mrs. F. N. Robertson of Vancouver are spending the winter in Virginia with Doctor Robertson's brother.

* * * *

Dr. W. T. Lockhart is back at his office following an accident which resulted in a fractured leg.

* * * *

Dr. R. B. Boucher has recovered from a recent illness.

* * * *

Dr. A. W. Hunter of Vancouver has resigned as pathologist to the coroner.

* * * *

The people of Bella Bella and surrounding district recently honoured Dr. George E. Darby upon the completion of thirty years' service as a missionary doctor in that area.

UPPER ISLAND MEDICAL ASSOCIATION ANNUAL MEETING

The annual Fall meeting of the Upper Island Medical Association was held at Parksville on November 23rd, 1944.

The following members were present: Doctors A. B. Hall, C. C. Browne, E. D. Emery, A. H. Meneely, L. Giovando and J. M. Hershey of Nanaimo; T. A. Briggs and Wm. McEwen of Courtenay; A. R. Hicks of Cumberland; R. W. Garner, G. B. Helem, A. P. Miller and W. C. Pitts of Port Alberni; E. N. East of Qualicum; and Doctors D. A. Hewitt, Martenmas, Chaintrees, and the two guest speakers Doctors G. O. Matthews and H. H. Milburn from Vancouver.

The meeting opened with a tribute to the memory of the late Dr. M. W. Thomas. Dr. Matthews spoke of those qualities which had endeared him to members of the profession throughout the Province, and called on the members to rise for a minute of silent respect to his memory.

The officers for the coming years 1945-46 were elected as follows: Dr. C. T. Hilton of Port Alberni, President; Dr. A. P. Miller of Port Alberni, Vice-President; Dr. W. C. Pitts of Port Alberni, Secretary-Treasurer.

The following appointments were also made: Dr. R. W. Garner, Chairman of the Committee on Cancer; Dr. G. B. Helem, Reporter to the BULLETIN; Dr. A. H. Meneely, Chairman of the Sub-Committee on Economics.

Dr. Matthews spoke briefly in his capacity as President of the British Columbia Medical Association, referring to the negotiations under way for the establishment of a Medical Faculty affiliated with the University of B. C. He also urged more members to join the Canadian Medical Association.

Dr. H. H. Milburn addressed the meeting as President of the Council of the College of Physicians and Surgeons.

Following this Dr. Matthews gave a very interesting and instructive talk on "Common Problems in Treatment of Infants and Children," which was much appreciated by his audience.

A vote of thanks was given to the speakers of the evening.

The outgoing officers were thanked for their services during the past year, after which the meeting closed with God Save the King.

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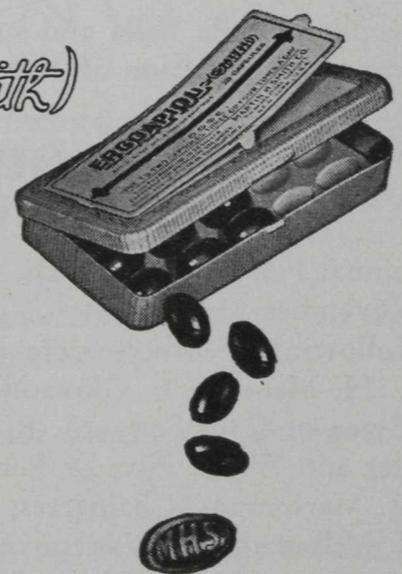
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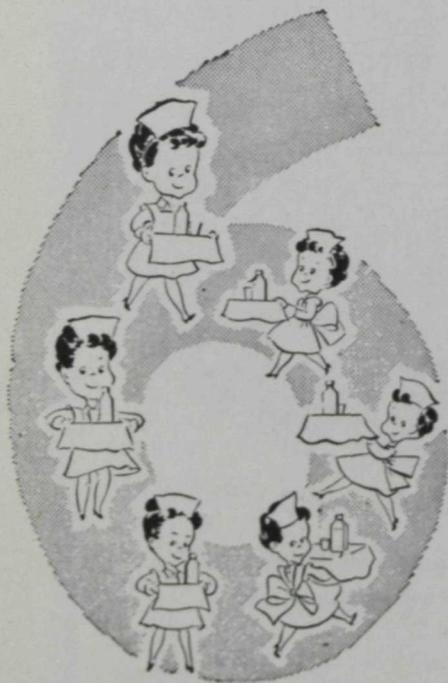
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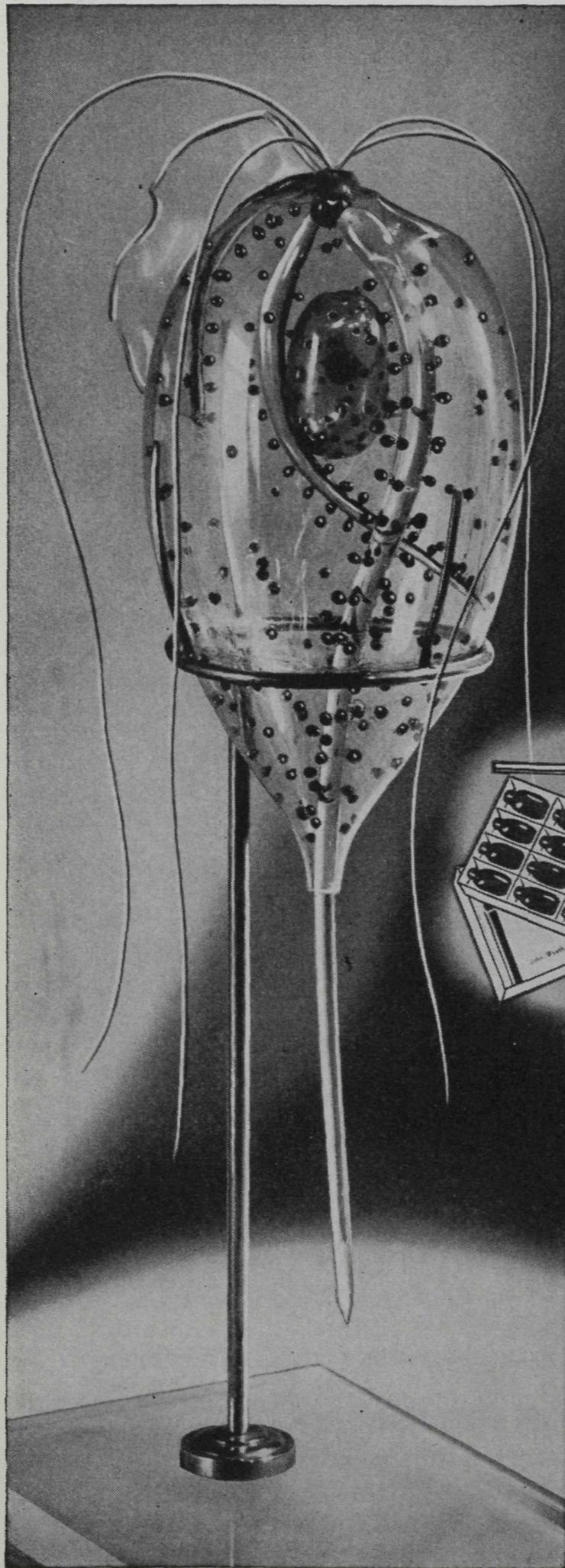
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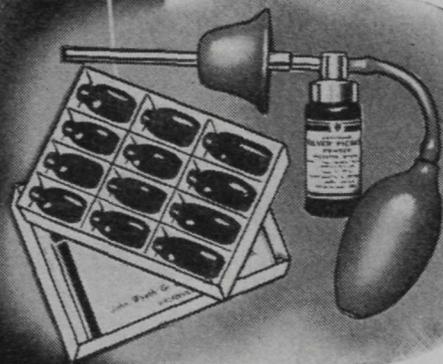
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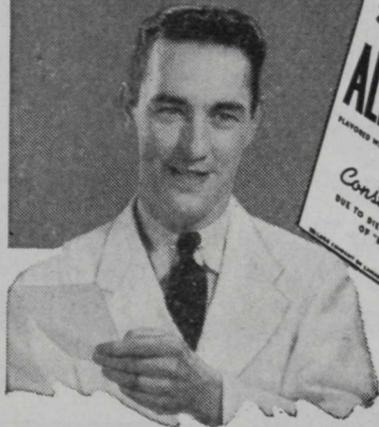
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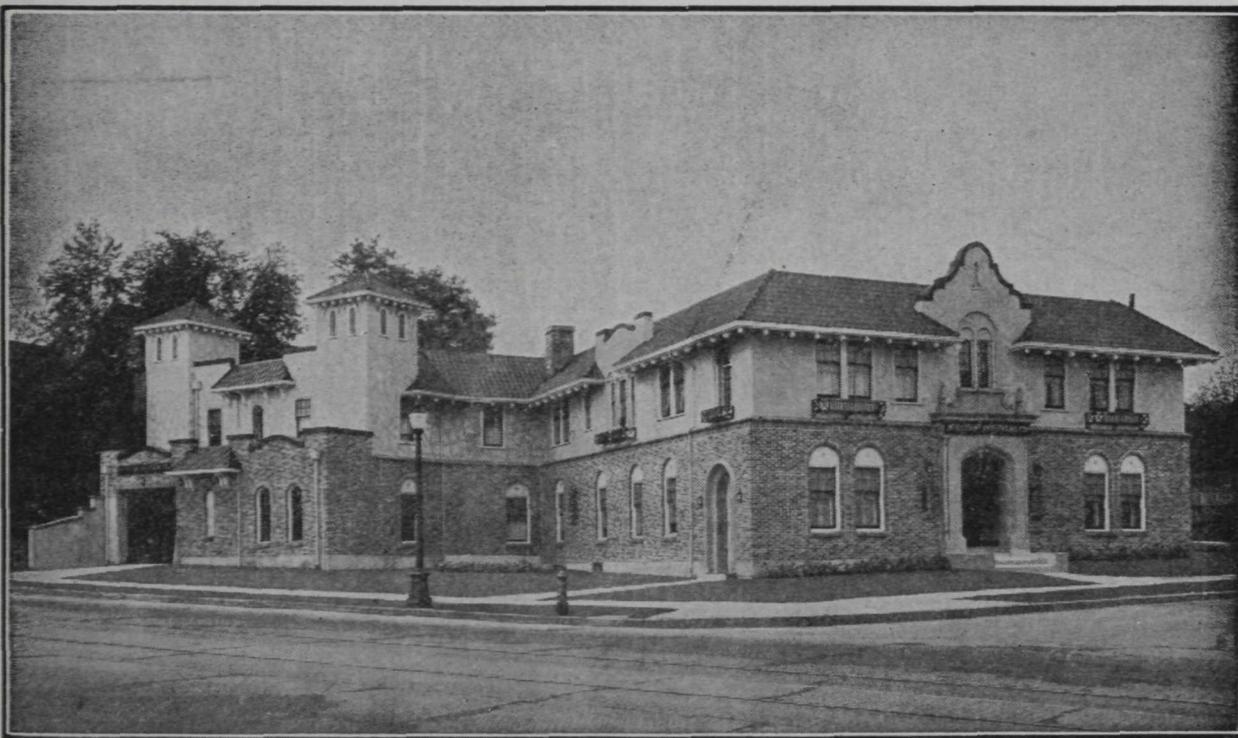
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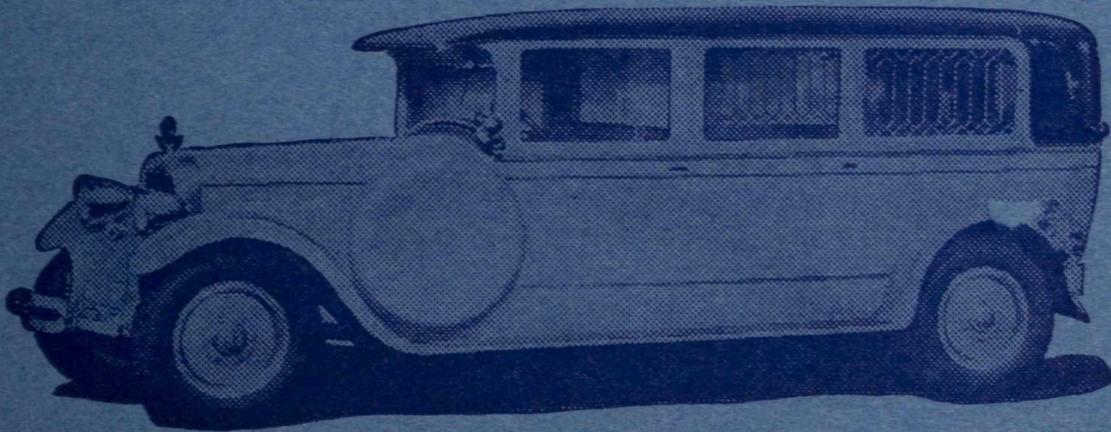
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