

ANNUAL REPORT

—OF THE—

PUBLIC HOSPITAL FOR THE INSANE

—OF THE—

PROVINCE OF BRITISH COLUMBIA

—FOR THE—

YEAR 1909.



**PRINTED BY AUTHORITY OF
THE LEGISLATIVE ASSEMBLY OF BRITISH COLUMBIA.**

VICTORIA, B.C.

Printed by RICHARD WOLFENDEN, I.S.O., V.D., Printer to the King's Most Excellent Majesty.
1910



New Building, Coquitlam, under Construction.

REPORT
ON THE
PUBLIC HOSPITAL FOR THE INSANE.
1909.

To His Honour

The Lieutenant-Governor of the Province of British Columbia.

MAY IT PLEASE YOUR HONOUR:

The undersigned respectfully submits herewith the Annual Report of the Medical Superintendent of the Public Hospital for the Insane for the year 1909.

HENRY ESSON YOUNG,

Provincial Secretary.

Provincial Secretary's Office,

January, 1910.

OFFICERS :

——:0:——

Medical Superintendent :
C. E. DOHERTY, M. D., C. M.

Assistant Medical Superintendent :
J. G. McKAY, M. D., C. M.

Bursar :
G. S. MACGOWAN.

Analyst :
F. P. HUGHES.

Steward and Storekeeper :
R. REES.

Engineer :
HEWISON STOUT.

Clerk :
T. H. CAMBRIDGE.

Matron :
MARIA FILLMORE.

R. LENNIE.

Chaplains :

E. MAILLARD, O. M. I.

Chief Male Attendant :
GILBERT MATTHEWSON.

Matron and Chief Female Attendant :
MARIA FILLMORE.

Carpenter :
J. D. HOPKINS.

Plasterer and Mason :
EDWARD FRITZGERALD.

Farmer :
E. B. STINCHCOMBE.

Gardener :
W. T. L. HOUSE.

Tailor :
W. F. BEGGS.

Shoemaker :
D. McQUARRIE.

Laundryman :
J. HARGIE.



Site of First Building, Coquitlam.

REPORT

OF THE

MEDICAL SUPERINTENDENT OF THE PUBLIC HOSPITAL FOR THE INSANE,
NEW WESTMINSTER, B. C.

—:—

FOR THE YEAR ENDING 31ST DECEMBER, 1909.

NEW WESTMINSTER, B. C.,

January, 1910.

The Honourable

*The Provincial Secretary,
Victoria, B. C.*

SIR,—I have the honour to submit herewith the Thirty-eighth Annual Report of the Public Hospital for the Insane at New Westminster, B. C., embracing a full account of the operations of that Institution for the year 1909, together with a summary of the requirements for the ensuing year, which I trust will receive the approval of your Department before the Estimates of the Provincial Legislature are framed.

In the year covered by this report, 232 patients have been admitted, 150 have been discharged. Of those discharged, 72 had recovered, 46 had improved, 31 had not improved, one was not insane. The percentage of recoveries, based upon admission, is considerably higher than in previous years, and may depend, to a certain extent, upon the character of the admissions; but I am inclined to think that it may be due, in a larger extent, to the increased facilities for the treatment of our insane.

For the purpose of comparing the results of the year with previous years, the usual order in previous reports is followed in the digest of the statistical tables.

Among the causes assigned for the insanity of 90 admissions, the physical, including bodily disorders and ill health, were accountable for 43; while the moral, including worry, excitement and shock, were operative in only 47. Among the 43 cases assigned to physical causes, about one-fifth were due to intemperance and allied causes. Approximately one-third of all the admissions were due to what are usually considered preventable causes.

ADMISSIONS.

During the year 232 patients were admitted; a very large number when the admissions of a few years ago are considered. This phenomenally rapid increase has at times taxed to the utmost our accommodation; but when the new buildings at Colony Farm are completed, our difficulties in this respect will have ended, and I think the Government is to be highly commended for the careful and business-like methods adopted to ensure for Coquitlam plans of buildings, which, when finished, will be second to none in the Dominion.

The burden upon the taxpayer of caring for the constantly increasing numbers of the insane has occasionally given rise to a division of sentiment, when the question of appropria

tions for their care has been under discussion ; but I can assure you that those members of the Legislature who oppose a liberal and enlightened policy do so under a mistaken idea of economy. It is astonishing that even among some of the members of the medical profession, and I am sorry to say also even among a few of the employees of this very Institution, there are those who insist that all active treatment by expensive medicines, hydrotherapy, and laboratories with expensive apparatus and equipment, is of no avail except to increase expense and make a show ; that formerly, in the time of the old straight-jacket and box-bed, patients recovered with none of those costly aids, as frequently, or nearly as frequently, as they do now with them. If worsted in this argument, as a last resort they will then claim that, in their opinion, the only results that have accrued from the modern and possibly slightly more expensive methods of treatment of the insane is the preservation of a constantly increasing mass of unproductive citizens, who have simply survived their own usefulness and remain a burden for the taxpayer to support. This is the attitude assumed by those who, it is hoped, constitute only a very small minority in this enlightened Province. We are obliged, in candour, to concede that, notwithstanding the general adoption of hospital methods in the treatment of our insane, with the laboratory and various modern therapeutic measures, we have failed to establish as high a rate of recovery as we would like, but to some extent we have been successful, and we are determined to further adopt the methods of the general hospital rather than that of an asylum, to simply feed, clothe and comfortably shelter the insane ; in other words, to simply render custodial care.

DISCHARGES.

A slight glance at Table No. 19 will bring to your notice results such as should give us the greatest encouragement in pursuing to the utmost every effort in the study and treatment of the insane. Much of the reward of this service, which comes to the physician, is the satisfaction he feels in the great responsibility placed on him in being privileged to administer to the needs of so many human beings in distress, and in knowing that, in some small degree, his labours are meeting with success. Thirty-one per cent. of recoveries is a good result, but one that we hope, at some future date, to be able to improve upon.

In connection with Table No. 19, it should be borne in mind that, with those discharged as improved, it frequently transpires that our efforts towards the restoration of the patient's health, which, at the time of his departure, may be put down simply as an improvement, goes on finally to recovery at his home. This we know from the history of the patient long after he has left the Hospital, as our case records will show.

DEATHS.

During the year 38 died in this Institution and 2 at the Branch Hospital at Vernon. This is a very small percentage of deaths on the total number of cases treated ; in fact, one of the smallest on record in this Hospital. We have been remarkably free from epidemics of any sort, while the general health of the older chronic cases has greatly improved with the increased amount of out-door exercise, and out-door life.

ASSAULTS, SUICIDES AND ACCIDENTS.

I am very pleased to be able to report that, as a result of admirable diligence on the part of nurses and attendants, we have no cases of homicide to report. One patient, a toxic (alcoholic) case, did attempt suicide, and, although almost immediately noticed and cut down, died next day, apparently from shock. His system had been greatly reduced from the prolonged use of alcohol.

TREATMENT.

It need hardly be said that, in the consideration of this question, humanity has always taken the first place. I long ago came to the conclusion that no system for the care and treatment of the dependent insane can be successfully administered which is not sustained in its ordinary operations by the highest order of human emotions. Among the insane of this Province, especially among those admitted during the past few years, are to be found numerous representatives of all professions, trades and occupations, whose financial, social and intellectual status may have been of a high order, and most of whom were respectable and self-supporting citizens prior to the onset of their disease. That the Province is in duty bound to provide these dependent sufferers with humane care and intelligent treatment goes without saying.

The happiness and welfare of the patients, while they are in this Hospital, depend greatly on the character and conduct of the attendants; upon their efficiency depends, hourly and momentarily, the safety of the patients, while upon their humanity and conscientiousness depend continuously the comfort, happiness and well-being of the afflicted assigned to them. I am glad that you, as Provincial Secretary, have fully realised the manifest and overwhelming importance of this question, and as a result have never placed in my way the slightest obstacle against the instant dismissal of employees for brutality and insubordination; and for this, if for no other reason, I trust that Providence may long spare you for the honourable position you now occupy. Without strict discipline and full authority to discharge attendants, the best Superintendent that ever breathed is powerless to affect any improvement in his patients or in the hospital over which he is the head.

INCREASED NIGHT FORCE.

Previous to last year, the Institution had not been provided with night nurses, but simply with night watches, three in number. The duty of the night watch was to make a round hourly, sometimes oftener, and, possibly, in many instances, not so often. The night watch was supposed to pass through every hall or ward at least once an hour, and carried with him or her a kerosene lantern. Too much cannot be said against such a system, and if suicides did not occur, it was more by luck than by good management; deaths from exhaustion of maniacal patients used to be common; the morbidly suspicious were greatly intimidated and, in many instances, made miserable from being locked in a room; the sick could not receive proper attention, while the violent were not controlled as they should have been.

During the year the night force was greatly increased, and it is our intention, in the near future, to provide nearly as full a quota of night nurses as a full day force. Since the inauguration of the increased night force, the first thing we did was to throw open nearly all inside doors, and very satisfactory results have followed. The atmosphere following this change has been greatly improved, as the abominable chamber has been discarded. Patients have as free access to the toilet-rooms at night as during the day. It is exceedingly rare that a patient becomes violent enough to warrant closing any door. I make freely the declaration that, during the next year, I intend to put in vogue a system where not a door of a single room or dormitory will be closed at night, and where every patient will have full use of the toilet-rooms, drinking water, etc., during the night, as he has during the day.

I can well remember the time, when I first entered Asylum work, that I used to listen to Superintendents discussing the matter of light material for chambers, so that they could not be used as offensive or defensive weapons. Every Hospital man is cognizant of the fact that the heavy chamber is very objectionable, but, in my mind, the weight is far less objectionable than other things which could be mentioned.

On the other hand, having some one with the insane patients day and night, dealing firmly, yet kindly and gently, has a subduing effect; a warm bath, a cold bath, a warm pack, a cold pack, or a glass of warm milk, are much better than restraint, hypnotics and locked doors.

HYDROTHERAPY.

The good effects to be derived from the appropriate use of this method of treatment is becoming more and more apparent in this Hospital each day. The continuous baths have been very efficient in reducing motor restlessness, and also have exerted very beneficial reflex influences in states of anxiety and depression. It is wonderful to watch excited patients becoming quickly accustomed to the water, and gradually quieting down, in many instances, into a peaceful sleep.

Mr. Beaton has handled this Department to our entire satisfaction. His very long experience as a mental nurse under the best teachers, coupled with his own high degree of intelligence, renders him an invaluable man to this Hospital. In no instance have I ever known him to tire where the patient's interests were at stake.

During the year he has given the following:—

3,487 warm full baths.

5,114 rain and needle shower baths.

84 steam cabinet baths, followed by passive massage.

41 prolonged continuous baths, as high as seven hours.

Very numerous applications of packs (hot and cold).

165 applications of faradic current.

25 applications of electrical vibrator.

AMUSEMENT.

During the winter months, regular concerts and dances have been held. The Institution Orchestra, under the leadership of Mr. Darcy, has become a valuable adjunct. It is impossible for an outsider to realise how thoroughly our patients have enjoyed these evenings.

During the summer, the first annual games were held, and were largely participated in by both patients and employees.

EMPLOYMENT.

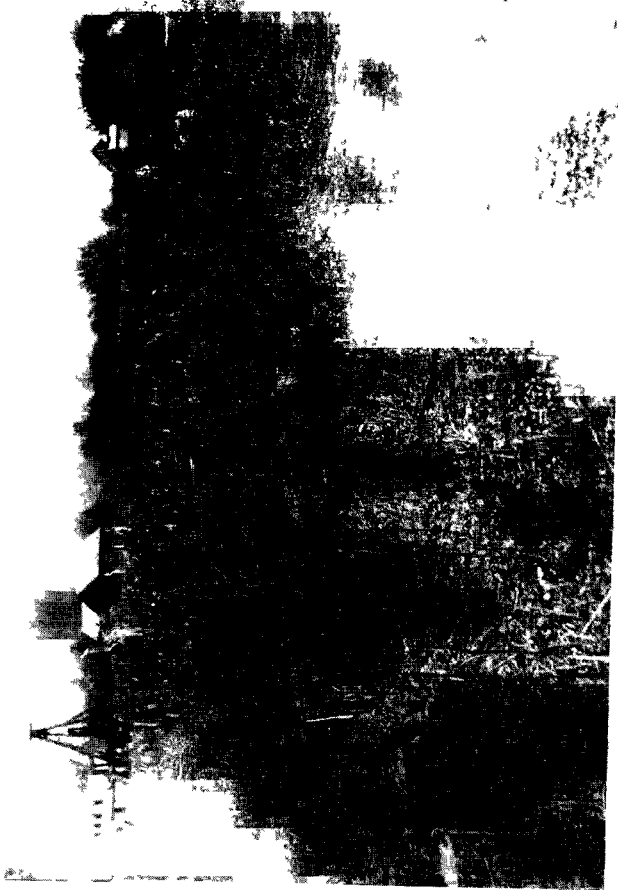
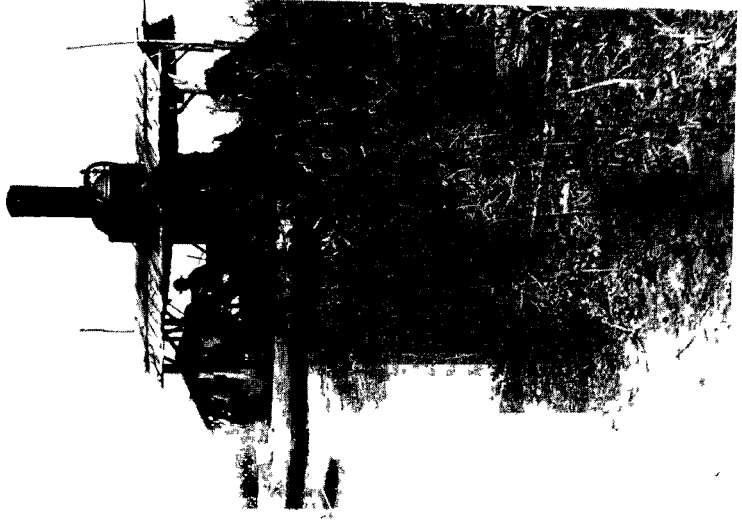
A larger number of patients were employed at regular occupations during the past year than were before, and I have pleasure in referring you to Table No. 21.

CHANGE IN STAFF.

On April 20th, 1909, Thomas Mayes, Resident Superintendent of the Branch Hospital at Vernon, died. While Mr. Mayes had been a long sufferer from diabetes, his death was sudden and rather unexpected, as his disease had not, up to the time of his death, interfered with his work. He was an incessant worker, a man of the highest ideals, and one who had earned the respect and affection of all with whom he was associated.

Following the death of Mr. Mayes, Mr. Granby Farrant, who for many years had been connected with the staff of the New Westminster Hospital, was appointed to the position of Superintendent of the Branch Institution. Mr. Farrant entered upon his duties on May 10th, 1909, and from the start strongly demonstrated his ability to efficiently manage such an Institution.

During the year several changes occurred among the staff of nurses and attendants, but I am pleased to say that in only one instance was a dismissal necessitated as a result of rough treatment of patients.



Clearing Farm, Coquitlam.

IMPROVEMENTS.

During the past year, considerable improvement has been accomplished on the interior of many of the wards. Wards D, E and H were completely overhauled; plumbing, heating, ventilation and electric wiring receiving first attention, while the floors in each of these wards had to be renewed. All day-rooms, dining-rooms, dormitories and single rooms were replastered, painted and properly decorated, and before leaving were comfortably furnished.

The exterior of the entire group of buildings was tuck-pointed and repainted, which in itself was a large task, as most of the work had to be done with patient labour.

The old high board fence, which for so many years surrounded the Hospital grounds, was removed, and in its place now stands a substantial cement wall, surmounted by a wrought-iron fence of pretty design. The effect produced by this change, on the general beauty of the place, has been remarkable.

At Colony Farm work has progressed nicely during the year. Over 400 acres of land have been cleared, and during the next summer we hope to be able to cultivate most of this.

A dyke and large drainage ditches, practically $3\frac{1}{2}$ miles in length, now completely surround the low land of the farm, and the contractors are to be congratulated upon the efficient manner in which they carried out this difficult piece of work.

A good start has been made in the construction of the new chronic block, and next autumn should, at least, see the roof on this large building, which should be completed and ready for occupation not later than the spring of 1911.

The new road, $2\frac{1}{2}$ miles long, and representing a diversion of the old Dewdney Trunk Road, was completed about November 1st and is now open to traffic. The changing of the location of this road has greatly improved our building site, as it renders available for lawn purposes several acres of beautifully sloping land.

EXPENDITURE.

In the matter of expenditure, our per capita cost of maintenance was \$183.32. This is lower than the preceding year and one of the lowest in the history of the Institution. In no way have we attempted to deprive our patients, but have been liberal in diet, clothing and amusement.

TABLE A.

Showing the average number of patients in residence each year, the total amounts spent for maintenance and the per capita cost.

Year.	Average number in residence.	Maintenance expenditure.	Per capita cost.
1872 (81 days).....	16.57	\$ 2,265 25	\$616 00
1873.....	16.07	7,841 94	487 98
1874.....	16.76	8,232 41	491 20
1875.....	27.42	9,892 38	360 77
1876.....	36.41	12,558 18	344 91
1877.....	34.61	12,917 17	373 26
1878.....	36.52	13,985 05	382 93
1879.....	38.17	10,253 72	268 63
1880.....	45.42	10,552 18	232 32
1881.....	47.18	10,691 76	226 62
1882.....	47.86	11,343 65	237 02
1883.....	48.73	11,829 11	242 75
1884.....	48.70	11,843 94	243 20
1885.....	54.67	15,555 87	284 54
1886.....	59.11	15,334 43	259 42
1887.....	73.55	15,945 22	216 70
1888.....	79.43	16,261 06	204 72
1889.....	71.30	15,657 79	219 60
1890.....	78.78	17,577 80	223 13
1891.....	119.87	21,757 03	181 50
1892.....	125.24	23,518 37	187 80
1893.....	133.92	25,904 98	193 36
1894.....	148.64	26,495 83	178 25
1895.....	162.97	31,587 89	193 83
1896.....	171.43	32,001 40	186 67
1897.....	188.91	36,224 76	191 75
1898.....	216.53	46,420 25	214 38
1899.....	226.44	54,917 45	242 52
1900.....	243.24	59,349 20	244 00
1901.....	269.56	55,406 08	205 54
1902.....	296.62	55,345 65	186 59
1903.....	332.23	59,353 57	178 65
1904.....	351.55	66,052 76	187 89
1905.....	340.90	63,342 07	185 80
1906.....	374.57	66,596 69	177 79
1907.....	419.24	74,874 64	175 59
1908.....	490.80	90,269 49	183 92
1909.....	526.85	96,586 32	183 32

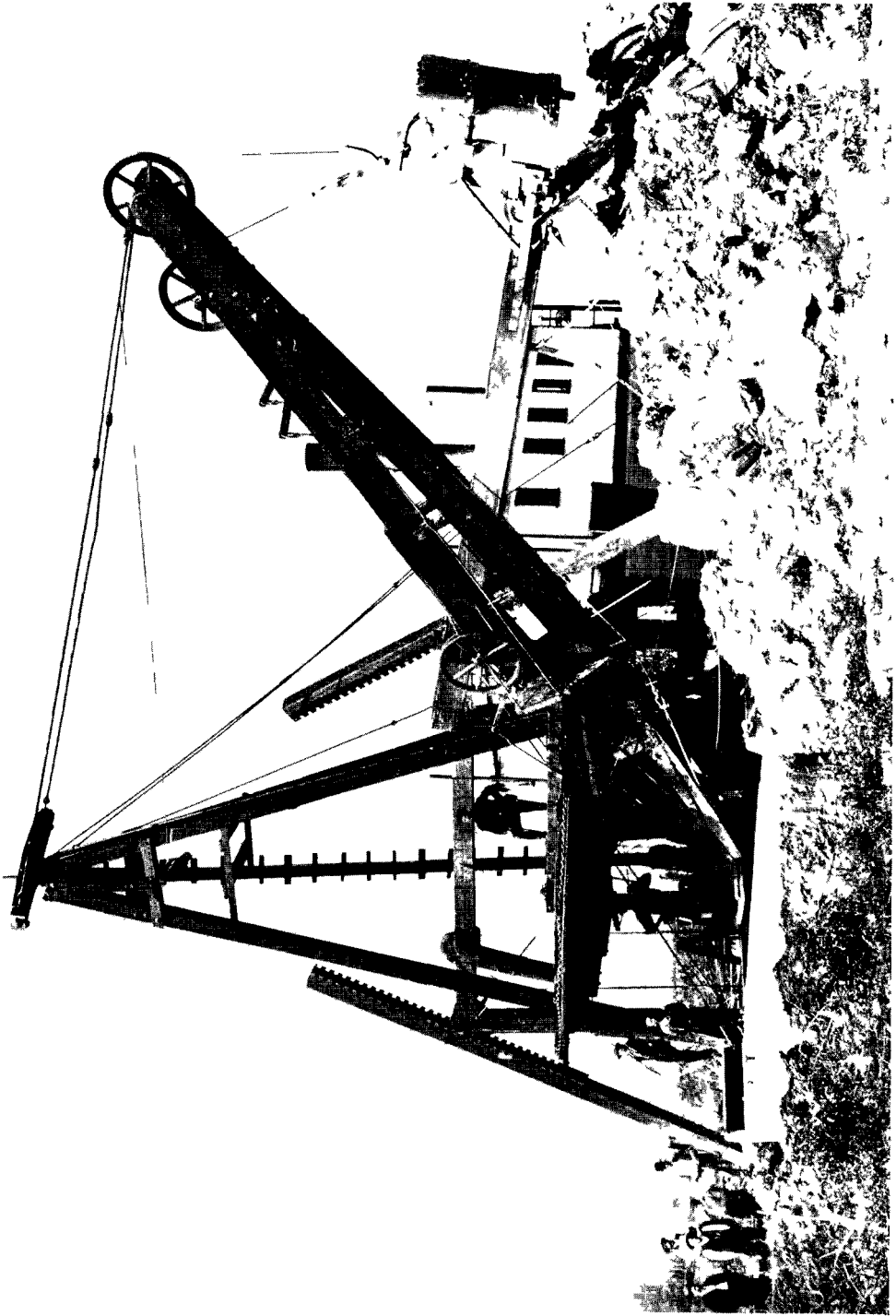
TABLE B.

Showing analysis of the per capita cost.

Year.	Salaries.	Provisions.	Clothing.	Fuel and Light.	Furniture.	Medicines.	Miscellaneous.	Total.
1872.....	\$279 38	\$184 03	\$55 81	\$22 44	\$15 55	\$10 18	\$49 30	\$616 69
1873.....	221 48	166 81	14 55	23 65	21 59	7 74	32 16	487 98
1874.....	231 10	152 10	22 07	23 98	28 36	7 78	25 81	491 20
1875.....	153 82	113 40	13 98	16 88	25 45	6 73	30 51	360 77
1876.....	143 34	114 45	18 68	22 75	17 90	2 86	24 93	344 91
1877.....	177 15	126 75	20 69	4 66	20 75	3 74	19 52	373 26
1878.....	176 16	124 23	30 43	13 94	7 20	9 16	21 82	382 93
1879.....	134 27	95 10	3 25	15 91	6 39	6 31	7 40	268 63
1880.....	111 84	87 71	5 74	14 06	6 00	3 63	3 34	332 32
1881.....	112 44	81 14	6 86	12 73	5 55	2 56	5 34	226 62
1882.....	121 51	84 52	7 05	12 30	4 54	3 49	3 61	237 02
1883.....	123 81	92 56	6 03	11 04	4 26	2 24	2 82	242 75
1884.....	124 02	90 64	7 03	12 43	4 14	2 77	2 18	243 20
1885.....	169 05	84 33	6 33	15 05	3 90	2 93	2 95	284 54
1886.....	159 03	69 35	5 49	16 20	3 72	1 59	4 04	259 42
1887.....	127 80	59 10	5 88	15 38	3 88	93	3 81	216 78
1888.....	118 34	60 47	4 41	13 90	3 11	2 09	2 40	204 72
1889.....	131 76	59 11	7 20	12 93	4 13	2 07	2 46	219 60
1890.....	121 54	62 77	9 02	17 31	4 00	1 29	7 19	223 12
1891.....	88 35	54 79	3 83	20 43	3 40	1 89	8 81	181 50
1892.....	94 25	56 74	4 69	20 53	3 35	1 80	6 42	187 80
1893.....	95 50	53 55	5 43	22 60	3 39	2 69	10 20	193 36
1894.....	87 76	57 07	5 25	18 83	2 98	1 43	4 93	178 25
1895.....	90 83	61 15	9 90	20 41	2 51	3 10	5 93	193 83
1896.....	89 13	55 93	6 30	20 29	2 56	3 63	8 83	186 67
1897.....	89 09	58 18	8 36	19 11	2 95	3 86	10 20	191 75
1898.....	94 68	69 43	9 94	21 82	2 76	5 12	10 62	214 37
1899.....	113 31	72 91	8 31	33 96	2 50	2 73	8 80	242 52
1900.....	116 04	72 62	9 06	32 10	2 15	1 71	10 32	244 00
1901.....	99 16	66 65	10 12	18 52	3 25	1 07	6 77	205 54
1902.....	87 47	61 13	7 95	15 25	4 13	1 20	9 46	186 59
1903.....	82 36	57 86	8 58	14 77	3 24	1 91	9 93	178 65
1904.....	87 43	60 01	6 85	17 84	4 48	2 10	9 18	187 89
1905.....	92 17	54 09	5 99	17 93	3 83	2 03	9 76	185 80
1906.....	88 76	53 15	5 16	15 92	3 57	1 21	10 02	177 79
1907.....	89 18	48 47	5 81	19 82	3 02	1 57	10 72	178 59
1908.....	90 93	49 17	6 61	17 63	4 56	1 79	13 23	183 92
1909.....	94 27	53 41	8 16	13 02	2 78	84	10 84	183 32

TABLE C.
Showing the total expenditure of the Public Hospital for the Insane annually since its inception, analyzed under its various headings.

Year.	Salaries.	Provisions.	Clothing.	Fuel and Light.	Furniture (estimated).	Medicines, etc.	Miscellaneous.	Total of Current Expenditure.	Expenditure on Capital Account.					
									New Furniture.	Library.	Surgical Instruments.	Lands and Works.		
1872	\$ 1,027 30	\$ 676 85	\$ 202 64	\$ 82 50	\$ 57 19	\$ 37 52	\$ 181 25	\$ 2,265 25	\$ 1,300 00				\$ 74 00	
1873	3,359 31	2,680 69	233 82	380 00	347 00	124 49	516 77	7,841 94						
1874	3,872 71	2,549 19	370 07	402 00	475 35	130 41	432 68	8,232 41						
1875	4,217 73	3,109 49	383 75	463 00	696 66	184 65	836 60	9,892 38						
1876	5,218 83	4,167 00	680 19	828 51	651 64	104 28	907 73	12,558 18						
1877	6,129 63	4,386 67	716 13	161 50	718 08	129 41	675 75	12,917 17						25 25
1878	6,433 25	4,537 02	1,111 30	509 25	262 65	334 42	796 96	13,985 05	1,000 00					
1879	5,124 96	3,629 95	124 08	607 60	243 75	240 75	282 63	10,253 72						
1880	5,079 95	3,982 99	260 75	638 88	272 75	164 88	151 98	10,552 18						17 62
1881	5,304 96	3,828 29	323 84	600 39	261 38	121 03	251 87	10,691 76						
1882	5,815 46	4,045 02	336 82	589 00	217 12	167 22	173 01	11,343 65						
1883	6,033 50	4,510 55	293 37	537 50	207 38	109 50	137 31	11,829 11						
1884	6,039 96	4,412 60	342 47	605 67	201 78	135 11	106 37	11,843 94	100 00					
1885	9,242 23	4,604 96	345 88	822 65	213 24	160 14	161 77	15,355 87	100 00					
1886	9,399 96	4,099 09	324 89	957 55	219 83	94 26	238 85	15,354 43						245 52
1887	9,399 96	4,346 88	432 64	1,131 03	285 72	68 97	280 02	15,945 22						212 55
1888	9,399 96	4,803 57	350 17	1,103 86	247 24	165 60	190 66	16,261 06						135 19
1889	9,390 62	4,214 19	513 73	922 00	293 69	147 76	175 80	15,657 79						224 34
1890	9,575 13	4,945 57	710 64	1,363 52	315 28	101 90	565 96	17,577 80	2,800 00					625 56
1891	10,390 28	6,568 27	459 58	2,449 09	406 84	226 31	1,056 66	21,757 03	900 00					1,001 86
1892	11,803 83	7,106 64	587 48	2,571 26	418 82	226 19	804 15	23,518 37						433 99
1893	12,790 28	7,172 53	729 38	3,029 00	452 55	362 86	1,369 16	25,904 98						718 49
1894	13,044 16	8,492 53	771 05	2,799 87	442 69	212 86	732 67	26,495 83						170 32
1895	14,802 47	9,963 54	1,611 96	3,324 54	419 01	502 90	963 47	31,587 89						1,915 28
1896	15,280 62	9,388 22	1,079 85	3,479 46	439 36	623 24	1,511 05	32,001 40	800 00					1,126 74
1897	16,829 76	10,991 05	1,379 08	3,610 03	557 97	728 73	1,928 14	36,224 76	1,200 00					848 38
1898	20,302 31	15,032 71	2,153 11	4,725 96	598 05	1,109 66	2,238 45	46,420 25	2,700 00					5,320 30
1899	25,658 15	16,511 05	1,882 13	7,690 35	566 86	617 27	1,991 64	54,917 45	1,300 00					2,518 80
1900	28,224 96	17,665 60	2,203 97	7,807 15	521 96	415 10	1,823 28	55,406 08	2,400 00					5,175 20
1901	26,729 01	17,967 31	2,727 11	4,993 67	875 30	288 40	2,306 03	55,345 65	1,157 47					9,000 00
1902	25,945 89	18,132 13	2,359 90	4,525 45	1,221 87	634 16	3,300 40	59,353 57	1,723 70					8,426 70
1903	27,362 37	19,222 50	2,850 19	4,906 22	1,077 73	738 85	3,226 04	66,052 76	1,463 48					4,593 88
1904	30,735 95	21,096 19	2,409 34	6,271 55	1,574 84	738 85	3,928 71	63,342 07	1,711 84					3,981 72
1905	31,421 45	18,437 99	2,043 15	6,110 76	1,306 22	693 49	3,754 02	66,596 69	1,365 76					9,410 66
1906	33,243 80	19,908 19	1,934 15	5,965 32	1,337 80	453 41	3,754 02	74,874 64	4,352 22					10,175 00
1907	37,394 21	20,326 99	2,439 64	8,314 36	1,265 63	655 66	4,498 15	90,259 49	5,646 86					16,615 08
1908	44,626 20	24,132 49	3,244 77	8,652 81	2,239 68	877 40	6,496 14	96,566 32	2,598 95					
1909	49,665 85	28,142 65	4,298 91	6,856 11	1,465 79	441 59	5,715 42	96,566 32	139 76					



Building Dyke, Coquitlam Farm.

 REVENUE.

The amount of revenue collected at this office during the past year is in excess of that collected during any previous year, the total amount paid in to the Government Agent being \$25,845.65. Mr. Macgowan, our Bursar, is to be congratulated on the close attention paid to this important feature.

1873	\$1,440 99	1892	\$ 2,418 43
1874	680 00	1893	1,585 40
1875	1,342 50	1894	2,709 53
1876	730 31	1895	4,409 23
1877	799 91	1896	3,741 71
1878	479 42	1897	3,816 80
1879	867 38	1898	4,003 79
1880	1,433 04	1899	4,769 04
1881	614 99	1900	6,893 33
1882	505 18	1901	12,800 76
1883	298 24	1902	10,926 23
1884	98 35	1903	13,639 64
1885 .....	.....	1904	15,004 22
1886	50 00	1905	16,613 18
1887	720 59	1906	19,058 42
1888	750 00	1907	20,753 35
1889	220 00	1908	25,807 83
1890	599 24	1909	25,845 65
1891	761 15		

GARDEN PRODUCE—FRUIT.

Apples	27,634 lbs.	\$1,036 50
Blackberries	198 "	19 80
Cherries	302 "	30 30
Currants, black	125 "	12 50
red	1,073 "	85 84
Gooseberries	242 "	12 10
Peaches	80 "	16 00
Plums	819 "	24 57
Pears	2,314 "	69 42
Raspberries	424 "	42 40
Strawberries	422 "	63 30
Total		\$1,412 63

HOME FARM PRODUCE.

Potatoes	109,836 lbs.	\$ 990 00
Pork used at Institution	12,149 "	1,214 90
" sold live to Saleron		6 00
Chickens, dressed	92 "	64 40
Ducks	28 "	28 00
Eggs, dozen	920 "	368 00
Total		\$2,631 00

GARDEN PRODUCE—VEGETABLES.

Beans, French.....	493 lbs.	\$ 29 50
Beets.....	8,005 "	80 00
Cabbage.....	6,417 "	128 34
Cauliflower.....	125 "	12 50
Celery.....	56 doz.	19 60
Corn, sweet.....	206 "	51 50
Cucumbers.....	11 "	3 45
Leeks.....	900 lbs.	27 00
Lettuce.....	237 doz.	71 10
Onions.....	2,935 lbs.	146 75
Parsnips.....	8,676 "	86 76
Peas, green.....	2,725 "	163 50
Potatoes.....	3,605 "	36 00
Radishes, bunches.....	363	18 15
Rhubarb.....	1,385 "	81 48
Spinach.....	3,548 "	177 40
Tomatoes, ripe.....	249 "	24 90
" green.....	912 "	27 36
Turnips.....	32,231 "	241 73
Total.....		\$1,317 52

COLONY FARM.

Wood supplied to Institution.....	100 cords	\$ 450 00
Vegetables:		
Cabbage.....	3,000 lbs.	60 00
Potatoes.....	125 tons	2,250 00
Carrots.....	4 "	80 00
Parsnips.....	1½ "	30 00
Beets.....	600 lbs.	6 00
Mangolds.....	4,000 "	30 00
Turnips.....	10 tons	150 00
Total.....		\$3,056 00

REQUIREMENTS.

During the coming year, it is our intention to devote most of our energy in an effort to complete the work now going on at Colony Farm, and as no new buildings will be erected at New Westminster, a sum sufficient to keep the present equipment in a good state of repair is all that will be necessary; \$8,000 should be sufficient for this purpose.

The estimates of expenditure for Colony Farm for the next fiscal year have already been submitted to you.

DEPARTMENT OF PATHOLOGY.

The Pathological Department at this Hospital was established for the purpose of providing the hospital staff with facilities for scientific work directly connected with their cases on the wards, essentially as an aid to diagnosis. In addition, it was deemed advisable to extend its opportunities to the outside physicians of the City.

This policy has been adhered to, and now, after the lapse of two years, it is encouraging to realise that it is achieving its purposes in a manner which is creditable to the Institution and beneficial to those participating in its privileges.

This department has been conducted by Mr. F. P. Hughes, late member of the British Enteric and Dysentery Commission, and his work has been very thorough and most systematic. Appended is his report of all work done during the year.

OBLIGATION.

I beg to offer my sincere appreciation of the hearty co-operation and assistance always rendered me by the staff in general, while I would feel myself remiss in my duty if I failed to mention, in particular, my feeling of gratitude toward my co-worker, Dr. J. G. McKay, for his most loyal assistance and strenuous efforts in the medical work of the Hospital; my obligations are also due to all the other officers, without exception, for the interest uniformly manifested and for the faithful performance of their duties in their various departments.

In conclusion, permit me, Honourable Gentlemen of the Cabinet, to express to each member my personal gratitude for the kind courtesies you have always extended to myself, and for the great interest you have always manifested in the welfare of the patients, as well as for your earnest co-operation in all improvements attendant upon this Institution

I have the honour to be,

Sir,

Your obedient servant,

C. E. DOHERTY,

Medical Superintendent.

LABORATORY REPORT.

LABORATORY OF HOSPITAL FOR INSANE,
NEW WESTMINSTER, B. C., 1909.

The Medical Superintendent,

Public Hospital for Insane, New Westminster, B. C.

SIR,—I have the honour to submit, herewith, the Annual Report of this Laboratory for the year ending December 31st, 1909.

During the year permission was obtained for an autopsy performed upon 19 bodies. A summary of the pathological and microscopical reports will be found hereto appended.

Twenty-one gross specimens have been prepared and added to the collection for our embryo museum. A list of them will also be found hereto appended.

Examinations of blood, urine, sputa, etc., have been made on admission of each patient, and when specially indicated. The appended tables will show the number and nature of these examinations.

The results of all work carried out in this laboratory have been systematically placed on record, and can be used as a reference in the study of the future course and termination of the case presented, or for statistical purposes.

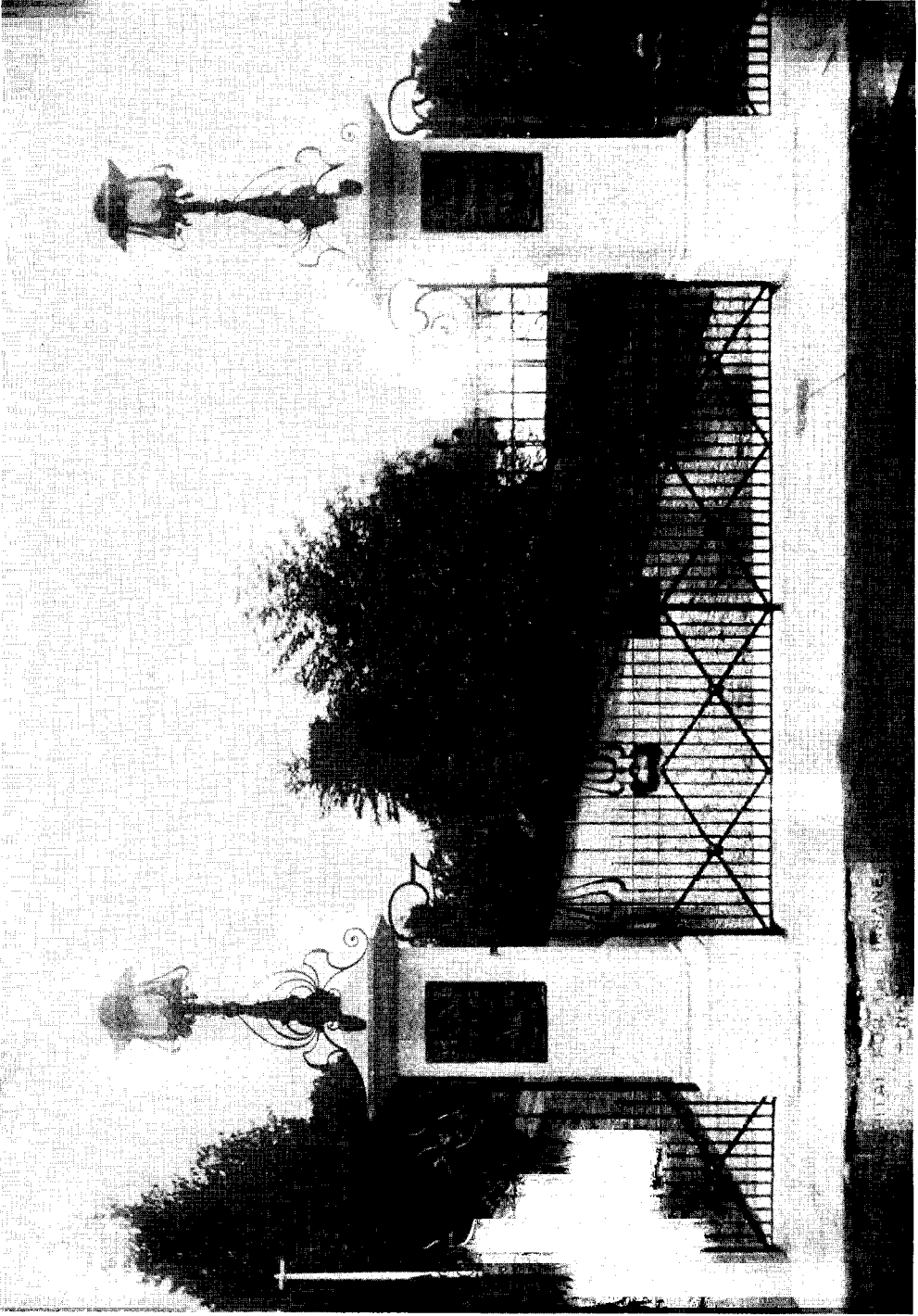
Chemical analyses and bacteriological examinations of the milk and water supplies have been made at least weekly, and food supplies analysed when required. The appended tables will show the work done in this regard.

At the commencement of the year there were in the laboratory cultures of the *Bacillus typhi abdominalis*, *Bacillus paratyphosus* (A. and B.), *Bacillus dysenteriae* (Shiga and Flexner), *Bacillus pestis* (human), and the *micrococcus melitensis*; each strain had been proved, by morphological and cultural characteristics, to be in pure culture. During the night of the 4th January the lacquer on the hinge end of the platinum contact of the incubator stuck, and the temperature rose to over 70° C., killing all the above cultures. However, other strains have been obtained, and we have now pure cultures of the *Bacillus typhi abdominalis* (one from one of our own patients), *Bacillus dysenteriae* (Shiga and Flexner), *Bacillus pestis* (human and rat), and the *micrococcus melitensis*. I have made several attempts to isolate a paratyphoid bacillus from suspected typhoid patients, but so far have been unsuccessful, notwithstanding the fact that I obtained one last year from peripheral blood (B. paratyphoid A.).

PATHOLOGY.

In addition to the ordinary routine work, considerable experimental work has been carried out. Attempts have been made to isolate and cultivate the *Spirocheta pallida* from suspected syphilitic patients, during life and post mortem, but, so far, successful results have not been obtained.

The spirochetæ of syphilis was brought into great prominence by the researches of Schaudinn on the etiology of syphilis. Formerly all slender apparently simple-structured spiral organisms were classified with the spirilla under the bacteria, but Schaudinn was inclined to believe, and he has many followers, that the syphilis spirocheta and related forms are protozoa belonging to the flagellates and related to the trypanosomes.



Entrance to Grounds, New Westminster.

A brief *résumé* of the difficulties experienced in deciding the nature of these organisms is the following: The reasons in favour of their protozoan nature are: (1.) Their flexibility and change in form when in motion, due to the lack of resistant membrane such as the spirilla have, and to the presence of elastic fibres such as are possessed by the flagellata. (2.) The morphological features of terminal periplastic cilia, absence of peritrichal flagella, indications of longitudinal division, traces of undulating membrane, and the demonstration of forms intermediate between the spirochetes and trypanosomes. (3.) Schaudinn considered that spirochetal forms which he observed develop in owls infected with *Leukocytozoon ziemanii*, a near relative of *Haemoproteus*, were a stage in the life cycle of the protozoa. Novy, however, showed that this inference was probably incorrect, because Schaudinn's animals might have been previously infected with spirochetes. (4.) The analogy between syphilis and dourine, a venereal disease of horses, caused by trypanosomes. (5.) The extreme liability of virus, the apparent absence of toxin production, the peculiar limitations surrounding successful inoculation in man and monkey, especially the failure of subcutaneous and intraperitoneal inoculations to infect, the peculiar localization of the organisms in the body, and the remarkable features of immunity in the disease, are hardly paralleled by any known bacterial infection.

In favour of the bacterial nature of *Spirocheta pallida* have been brought forward the following unconvincing points: (1.) The evidence of transverse division similar to that seen in spirilla. (2.) Demonstration of peritrichal flagella about some spirilla which in other respects resemble *Spirocheta pallida*. (3.) Levaditi, as well as others, denies the existence of an undulating membrane in *Spirocheta refringens*, demonstrates a terminal flagellum, and has recently cultivated the organism in collodion sacs, showing that it may multiply for many generations without assuming a trypanosome stage. In the same way Novy has recently reported the cultivation of *Spirocheta obermeieri*, and Levaditi thinks the entire group will prove cultivable and fail to show trypanosome forms. (5.) The absence of an intermediate host.

Until the structure of these organisms is studied more minutely and their life cycle is followed more closely, little can be determined in regard to their exact biologic position. The suggestion of Schaudinn and of Veuillemin, that a new group be formed of *Spirocheta pallida* and related types with the generic name *Treponema*, is perhaps a good one.

Numerous spirochetes and spiral organisms have been described since the appearance of Schaudinn's first announcement, some associated with *Spirocheta pallida* in syphilis, some in other lesions, or in the normal secretions of both man and the lower animals.

The failures, so far, to cultivate the *Spirocheta pallida* but lend an added zest to the search for a suitable medium for its growth. When this has been ascertained, its life cycle may be studied in order to decide its pathogenicity in insanity.

Lumbar puncture has been performed in all fatal cases, in order to obtain the cerebro-spinal fluid, under sterile precautions, for microscopical examination and cultivation purposes. To this end the fluid has been incubated with the following media:—Agar, serum-agar, glycerin-agar, blood-agar, phenolated-agar, serum, Hiss's water-serum, gelatin, bouillon, phenolated-bouillon, glucose-bouillon, lactose-bouillon, mannite-bouillon, 10 per cent.; peptone-bouillon, milk, potato, glycerin-potato, bread-paste, brain-pulp, spleen-pulp, cerebro-spinal fluid, liver, marrow, blood, blood-serum, Dunham's solution, and on special media containing in, varying amounts starch, asparagin, caffen, potassium phosphate, sodium chloride, formate phosphate, and taurocholate, under aerobic and anaerobic conditions, but in every case the media remained sterile after incubation up to one month, at temperatures ranging from 22° C.

to 42° C., with one exception, when the staphylococcus pyogenes aureus was recovered, probably a contamination of the syringe or needle used in obtaining the fluid. Animals have also been used as a medium, but in no case have successful results been obtained, so far.

Cultures have also been made on the above media from deep and superficial punctures of the cerebrum, cerebellum, and cord, but growth has not resulted in any one case after incubation up to a month at various temperatures.

Sections have been made from pieces of tissue where malignant growth was suspected in two cases, and cylindric cell epithelioma diagnosed in one.

Sections have also been made from organs, post mortem, in order to demonstrate the tubercle bacillus and diplococcus pneumoniae, when specially indicated.

Sections and smears have also been made from various organs, post mortem, and examined microscopically, in order to verify diagnoses.

Stomach contents have been examined, in two cases, after Boas's test breakfast, chemically and microscopically, for carcinoma, but was not demonstrated in either.

Peripheral blood was taken from a case of gaseous emphysema for isolation and cultivation of the bacillus aerogenes capsulatus, but not successful.

The diphtheria bacillus was found in two cases from throat swabs.

Examination of pus from pelvic abscess (operative) showed staphylococci.

In addition, microscopical examinations were made of the various parts of the nervous system in nearly all fatal cases, and when time would permit. Special methods have been employed, consisting of Nissl's ganglion-cell stain of soapy methylene-blue, Pal-Weigert and Heller's myelin stain, Mallory's and Benda's neuroglia stains, Golgi's osmic acid, and Berkley's phosphomolybdic acid modification of Golgi's method. Where definite pathological changes were observed, sections were mounted and preserved.

The question of specific pathological changes in and degeneration of the central nervous system in insanity is a moot one. Much work has been done in this regard by observers all over the world. Statistics extending over a number of years have been compiled, and numerous articles written on this subject; but, so far, no definite, authentic conclusions have been arrived at. This is a line of work with enormous scope and possibilities, and in which the results from various examinations are extremely baffling and complex, and the end elusive.

A case of tetany has provided ample material for research work; but, so far, our results only corroborate other investigations already recorded.

Brains and other organs have been preserved, for museum purposes, by the Kaiserling method. For the preservation of colour, no method yields results comparable to those obtained by that devised by Kaiserling.

GROSS SPECIMENS ADDED TO THE MUSEUM.

1. Hand and wrist. Tubercular (amputation).
2. Brain. Congestion and dilatation of vessels and oedema of convolutions.
3. Brain. Glioma frontal lobes.
4. Brain. Atrophied frontal lobe.
5. Brain. Atrophy frontal lobes.
6. Brain. Cerebral hemorrhage. Rupture ant. inf. cerebellar artery.
7. Beef heart. Forty-two ounces. Chronic arterio-sclerosis with atheromatous degeneration, aortic and tricuspid valves sclerotic and caseation of coronaries.

8. Stomach and transverse colon. Gastric carcinoma and perforation into colon.
9. Omentum and transverse colon. Tubercular peritonitis.
10. Liver. Atrophic cirrhosis. Tubercular peritonitis.
11. Spleen. Atrophic cirrhosis.
12. Liver. Interstitial hæpatitis.
13. Spleen. Prominence of malpighian bodies.
14. Cæcum. Typhoid ulceration.
15. Lung. Tubercular cavities.
16. Lung. Red and gray hæpatization.
17. Lung. Anthracosis.
18. Spleen. Tubercular infiltration.
19. Cord. Degenerative changes of. Myelitis.
20. Lung. Tubercular infiltration and thickening of pleura.
21. Brain. Convolutional atrophy.

SUMMARY OF AUTOPSY REPORTS.

(1.) *Cerebral Hemorrhage :*

2,373. S. K., male, æt. 33, Chinese, single, farm labourer, first admission. Duration of psychosis, unknown. Cause of death, cerebral hemorrhage.

Clinical Report.—Admitted 13th April, 1909, in a very excited condition; slight abrasions on neck caused by attempted hanging with a rope. After being bathed, patient was sent to observation dormitory, where he remained quietly in bed for the next twenty-four hours. About an hour after having his supper, patient showed a marked cyanosis, and was given heart stimulants, but failed to respond, and died shortly afterwards on 14th April.

Pathological Report.—Well nourished. Abrasions on neck. Cranial bones thick and hard. Dural adhesions over parietal verices. An extensive blood clot covering the left cerebral hemisphere extending down to the left crus, pons and cerebellum, arising from rupture of anterior inferior cerebellar artery. Moderate diffuse opacity of the arachnoid. Brain—weight, 1,587 grms.; pia not markedly adherent; brain substance pale and slightly softened. Heart—weight, 285 grms.; large clot in right ventricle. Lungs—weight, left 516 grms., right 595 grms; slight subpleural pigmentation. Liver—weight, 1,474 grms. Spleen—weight, 242 grms. Kidneys—weight, left 134 grms., right 141 grms.

Microscopical Report.—Cerebral capillaries engorged, perivascular and pericellular spaces prominent. Cerebro-spinal fluid negative.

(2.) *Myelitis :*

1587. T. R., male, æt. 58, single, school teacher, first admission.

Duration of psychosis, 4 years.

Cause of death, myelitis.

Clinical Report.—Admitted 12th January, 1905, in a very filthy condition, had a spastic gait which gradually grew worse. Mental condition gradually deteriorated up to the time of his death on 21st March.

Pathological Report.—Emaciated; acne over chest; scalp rather thin; cranial bones hard, but not thickened; extensive tenacious dural adhesions; dura thickened and tough; arachnoid opaque and contained plaques; increase of subarachnoidean fluid. Brain—weight, 1,261 grms.;

frontal lobes atrophied; vessels congested and dilated, especially in the right hemisphere. Spinal cord shows numerous fibrous lesions on both anterior and posterior surfaces, as far as the tenth dorsal vertebra; from there to the fifth cervicle are posterior lesions only. Numerous platelets of a calcareous formation adherent to spinal arachnoid and pia in cervicle region. From tenth dorsal downwards, the whole thickness of the cord is affected, presenting the appearance of unravelled rope, with no connection between the strands. The spinal pia and arachnoid have disappeared, and the spinal dura markedly thickened and adherent to the vertebra. Cerebro-spinal fluid increased. Aortic valve sclerotic. Arterio-sclerosis with atheromatous degeneration. Other thoracic and abdominal organs normal.

Microscopical Report.—Extensive degenerative changes in the nerve cells. Cord below tenth dorsal vertebra shows no nervous structure, mostly a degenerated granular débris. The gray matter of the cord, otherwise more or less structureless and granular, with considerable vascular engorgement. White matter shows degenerative changes in both directions.

(3.) *Imbecility:*

1793. G., male, æt. 39, Indian, single, labourer, first admission.

Duration of psychosis, 2 years 7 months.

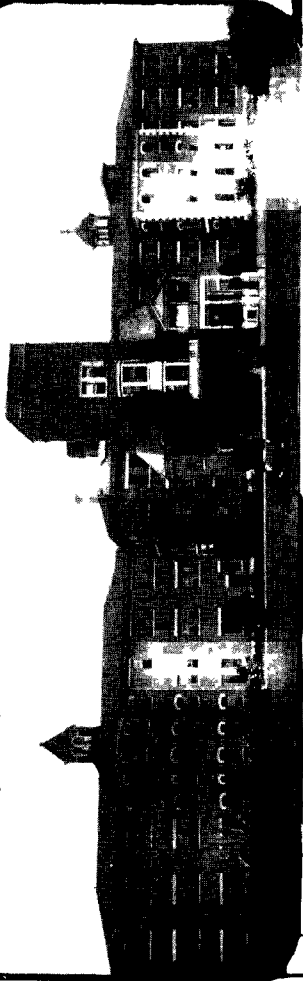
Cause of death, pneumonia, general tuberculosis, peritonitis.

Clinical Report.—Admitted 22nd July, 1906. Very depressed and dirty in his habits. This condition gradually grew worse until the time of his death on February 26th. February 23rd, 1909, pneumococci found in sputum.

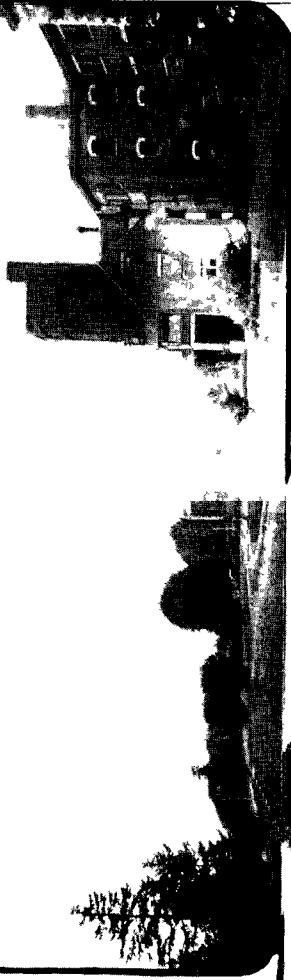
Pathological Report.—Emaciated; old scars on instep, left foot, and right knee; contusion on left elbow. Cranial bones a little thickened; no dural adhesions; opacity and white spots and bands of arachnoid; no marked increase of subdural or subarachnoidean fluid. Brain—weight, 1,559 grms.; brain matter a little softened; some œdema of convolutions; pia adherent. Heart—weight, 368 grms.; muscle pale; arterio-sclerosis with atheromatous degeneration; aortic and tricuspid valves sclerotic; right and left ventricles contained large clots. Lungs—weight, left, 1,020 grms.; right, 751 grms.; left lung, red and gray hepatization; no pus; lobes nearly solid; exudatous; on section ooze a bloody secretion; pleural cavity full of clear serous fluid; no adhesions. Right lung, apex solidified and contained two large tubercular cavities; middle lobe somewhat congested; no nodules or cavity formation; lower lobe adherent to diaphragm and somewhat congested; subpleural pigmentation. Liver—weight, 2,012 grms.; nutmeg in appearance; large; capsule adherent. Calculus size of a large marble in gall bladder. Spleen—weight, 184 grms., soft and dark coloured; malpighian bodies prominent; capsule adherent. Kidneys—weight, left, 249 grms.; right, 242 grms.; cortex pale; capsules adherent; 1,050 c. c. clear, serous fluid permeating the whole of the peritoneal cavity. All the abdominal organs were in one mass connected with fibrous tissue, omentum, peritoneum, and mesentery covered with whitish, tubercular spots. Omentum quarter-inch thick. Pancreas enlarged and tough. Mesenteric glands enlarged, some as large as a hen's egg.

Microscopical Report.—The pneumonic portion of the lung is mostly in a condition of red hepatization with beginning gray; intense engorgement of the alveolar capillaries, with rupture of some and filling of the vesicles with blood; tubercular infiltration in nodules and masses in all stages of degeneration; diffuse pigmentary infiltration of the bronchial glands with hyperplasia of the lymph follicles and tubercular infiltration; hyperplasia of the malpighian bodies of the spleen; interstitial hæpatitis. Smears from left lung show pneumococci; smears from right lung show tubercle bacilli; sections and macerated portions of spots on omentum and peritoneum show tubercle bacilli. Cerebro-spinal fluid negative.

Hospital Right Wing



Hospital Looking West



Hospital Grounds



(4.) Paranoia :

2331. A. J., male, æt. 53, white, single, logger, first admission.

Duration of psychosis, 7 weeks in hospital.

Cause of death, tubercular peritonitis.

Clinical Report.—Admitted 24th February, 1909. Physically his health prior to admission was poor, and he gave a history of treating with several medical men, but without relief. On examination patient was emaciated, skin dry, colour cachectic; examination of lungs negative; examination of heart found a mitral regurgitation; liver dulness diminished; superficial veins over abdomen and lower extremities prominent; boat-shaped distension of abdomen; complete right inguinal hernia. It was found necessary to keep him under constant observation, as he was actively suicidal. Patient's physical condition gradually deteriorated until the time of his death on 13th May.

Pathological Report.—Emaciated; abdomen hard, distended and tympanitic. Circumcised, but no cicatrix of chancre. Brain not examined. Heart—weight, 283 grms.; muscle pale; aortic valve sclerotic with atheromatous degeneration; caseation of coronaries; arterio-sclerosis. Lungs—weight, left, 358 grms.; right, 333 grms.; left lower lobe congested; subpleural pigmentation of both; no nodules or tubercular solidification. Abdominal organs all massed together with a whitish, glandular, lymphoid, hard mass; omentum, mesentery, and bladder overgrown and obliterated. Organs removed in situ for museum purposes. Atrophic cirrhosis liver. The mass was, in the thickest part, four inches thick, and had extended completely over the abdomen, anterior and posterior. Intestines normal; no ulceration; 500 c. c. serous fluid in peritoneal cavity.

Microscopical Report.—Sections and macerated portions of peritoneal mass show no tubercle bacilli. Smears from lungs no T. B. Peritoneal fluid no T. B. Cerebro-spinal fluid negative.

(5.) Dementia Præcox :

1689. J. B., male, æt. 24, white, single, labourer, first admission.

Duration of psychosis, 3 years 9 months.

Cause of death, pulmonary tuberculosis.

Clinical Report.—Admitted 19th October, 1905. From history received, psychosis had existed for some time previous to his admission. Patient had marked spiritual delusions, and for some time after his admission was quite bright on some subjects, but this condition gradually deteriorated, until he reached a state of almost complete katatonia, which existed up to the time of his death on July 3rd. July 2nd, 1909, sputum examination negative. April 22nd, microscopical examination of pulmonary hæmorrhage negative.

Pathological Report.—Emaciated; scalp thin; dural adhesions to bone and arachnoid over parietal verices; opacity and plaques of arachnoid; subdural fluid slightly increased. Brain—weight, 1,376 grms.; pia adherent, especially between fissures of convolutions; no œdema; convolitional atrophy of both frontal lobes. Heart—weight, 219 grms.; muscle, pale. Lungs—weight, left, 528 grms.; right, 928 grms. Left lung adherent to diaphragm; lower lobe engorged; no nodules. Right lung, firm adhesions at middle and lower lobes; no fluid in pleural cavity; middle lobe contained three large tubercular cavities full of foul-smelling pus and "cheesy" matter; lower lobe emphysematous and doughy, diffusely infiltrated with small, hard nodules, oozes a frothy fluid on section. Liver—weight, 1,162 grms.; slightly nutmeggy; capsule adherent. Spleen—weight, 127 grms.; pale; capsule not adherent.

Kidneys—weight, left, 134 grms. ; right, 141 grms. ; cortex, pale ; capsules adherent. Some mesenteric glands enlarged. No ulceration of intestines, but congestion from cæcum for about two feet up small intestine, walls generally thin ; pancreas somewhat tough.

Microscopical Report.—Chromatolytic changes in the nerve cells ; tubercular infiltration of right lung and bronchial glands ; venous congestion. Some fatty infiltration of liver. Smears from right lung show T. B. Sections from spleen and enlarged mesenteric gland, no T. B. Cerebro-spinal fluid negative.

(6.) *Dementia Præcox :*

2240. D. C., male, æt. 23, white, single, teamster, first admission.

Duration of psychosis, 7 months 2 weeks.

Cause of death, pulmonary tuberculosis.

Clinical Report.—Admitted 27th August, 1908. Onset of mental disturbance. About two months prior to his admission he had delusions of persecution, fearing that someone was going to harm him. After coming to the hospital, he appeared quite bright and was well orientated. About two months after admission, patient gradually reached a state of katatonía, which lasted for three months, after which he brightened up for a short time, but again became quite demented. This condition existed until his death on 7th April. January 30th, 1909, T. B. found in sputum. March 12th, sputum examination negative. March 19th, sputum examination positive. March 23rd, sputum examination positive. March 26th, sputum examination negative. March 28th, sputum examination positive.

Pathological Report.—Emaciated ; œdema of both feet ; rigor and livores mortis developed ; scalp thin ; cranial bones hard but not thickened ; subdural fluid slightly increased ; firm dural adhesions along superior longitudinal sinus ; white fibrous lesions of arachnoid. Brain—weight, 1,445 grms. ; pia slightly adherent, principally in fissures of convolutions ; vessels rather dilated. Heart—weight, 358 grms. ; dilated ; walls thin and muscle pale ; large clots in both ventricles ; no valvulitis or atheroma. Lungs—weight, left, 1,970 grms. ; right, 1,318 grms. Left lung, firmly adherent all round to costal pleura, diaphragm and pericardium ; typically tubercular on section and full of caseous masses ; pleura thickened. Right lung, no adhesions ; upper lobe hæmorrhagic ; lobes semi-solid, exudatous and infiltrated with pus ; ooze a bloody-muco-purulent secretion on section ; no tubercular cavities ; no fluid in pleural cavity. Liver—weight, 1,530 grms. Spleen—weight, 170 grms. ; pulp contained some tubercular nodules ; malpighian bodies prominent. Kidneys—weight, left, 148 grms. ; right, 134 grms. Intestines normal ; no fluid in peritoneal cavity.

Microscopical Report.—Moderate chromatolytic changes in the nerve cells. Extensive irregular masses of tubercular consolidation and cavity formation in all stages. Considerable perivascular and peribronchial pigmentary infiltration. Hyperplasia of the malpighian bodies of the spleen with tubercular infiltration. Cerebro-spinal fluid negative.

(7.) *Dementia Præcox :*

2271. C. B., male, æt. 39, single, white, carpenter, second admission.

Duration of psychosis, first, 6 months ; second, 1 day.

Cause of death, shock from hanging.

Clinical Report.—Admitted 17th October, 1908. Was quite depressed as a result of his hallucinations and delusions. Gives a history of prolonged drinking. Condition rapidly improved and patient was discharged on probation on 30th March, 1909. Was readmitted on the morning of 19th June, 1909, in a similar condition to his previous admission. Shortly

after retiring, he made an attempt to hang himself, but was found by the night attendant and efforts at resuscitation were used, which were successful in restoring respiration, but patient never recovered consciousness, and died thirteen hours later, on 20th June.

Pathological Report.—Well nourished; abrasions on both sides of neck; rigor and livores mortis developed; scar on left shin; scalp rather thin; temporal bones slightly concave; dura adherent to arachnoid over parietal verices; subarachnoidean fluid slightly increased; no opacity of arachnoid, but a few plaques. Brain—weight, 1,587 grms.; pia not markedly adherent; œdema of convolutions; congestion and dilatation of vessels. Heart—weight, 326 grms. Lungs—weight, left, 567 grms.; right, 666 grms.; left, adhesions at apex; slight subpleural pigmentation; moderate œdema of both. Liver—weight, 1,785 grms. Spleen—weight, 99 grms. Kidneys—weight, left, 141 grms.; right, 155 grms. All the above organs more or less congested. Intestines and other abdominal organs normal.

Microscopical Report.—Moderate distension of the perivascular and pericellular spaces in the brain substance. Diffuse staining of the nerve cells. Thyroid gland vesicles irregular in size and shape. Cerebro-spinal fluid negative.

(8.) *Dementia Præcox:*

1371. J. T., male, æt. 32, coloured, single, labourer (criminal), first admission.

Duration of psychosis, 6 years 3 months.

Cause of death, pneumonia, double.

Clinical Report.—Admitted 7th April, 1903, from the B. C. Penitentiary. Very dirty in his habits. Impossible to get him to enter into conversation. Gradually became more demented and at times quite katatonic. Died 24th March. Had only been known to be sick the day previous to his death.

Pathological Report.—Old scars on right thigh and left instep. Circumcised, but no cicatrix of chancre. Scalp thick; cranial bones thickened and hard; slight opacity of and a few plaques in arachnoid; slight increase of subarachnoidean fluid. Brain—weight, 1,304 grms.; slight œdema of convolutions and dilation of vessels; pale; pia not markedly adherent. Heart—weight, 255 grms.; moderate sclerosis of the aortic valve. Lungs—weight, left, 807 grms.; right, 793 grms.; firm pleuritic adhesions on right side; posterior portion of upper right lobe of a cyanotic-red colour, slightly doughy, and oozes considerable bloody fluid; the lower right lobe is solid throughout in a condition of gray hepatization; bronchial mucosa swollen and congested and the lumen filled with a frothy, bloody secretion. Bronchial glands enlarged and pigmented; those on the right side somewhat softened. Liver—weight, 1,005 grms. Spleen—weight, 127 grms. Kidneys—weight, left, 134 grms.; right, 127 grms.

Microscopical Report.—Diffuse staining and extensive chromatolytic changes in the nerve cells. Intense engorgement of the pulmonary capillaries, the vesicles in a condition of red and gray hepatization. Cerebro-spinal fluid negative.

(9.) *Dementia Præcox:*

1964. R. M., male, æt. 30, white, single, ship carpenter, first admission.

Duration of psychosis, 18 months.

Cause of death, pneumonia.

Clinical Report.—Admitted 9th July, 1907, was depressed and very uncommunicative from time of his admission until his death. On several occasions patient remained in a katatonic condition for weeks at a time. Died January 23rd. November 11th, 1908, blood count, reds, 4,272,000, leukocytes 11,840; sputum not obtainable.

Pathological Report.—Emaciated; tattoo marks on both fore-arms; dural adhesions: dura slightly thickened; diffuse opacity and plaques of arachnoid. Brain—weight, 1,460 grms.; pia adherent especially in fissures of convolutions; diffuse meningo-encephalitis. Heart—weight, 297 grms.; moderate sclerosis of aortic valve; increase of pericardial fluid; pericarditis. Lungs—weight, left, 694 grms.; right, 1,176 grms. Left lung, hypostatic pneumonia; firm pleuritic adhesions in both pleural cavities, with that over the lower lobes intensely congested and covered with a fibrino-plastic exudate cementing the surfaces together, more so on the right side. The whole of the lower lobe and the base of the upper lobe on the right side, and the posterior and lower two-thirds of the lower left lobe in a condition of red and gray hepatization. In the anterior portion of the right lower lobe is a semi-fluctuating cavity, containing grumous, broken-down material, with a very offensive odour. Bronchial mucosa congested and the lumen filled with a muco-purulent secretion. Bronchial glands enlarged and softened; serous fluid in right pleural cavity, a gelatinous-like mass, three and a half by one and a half inches, adherent to upper left lobe. Liver—weight, 878 grms. Spleen—weight, 162 grms. Kidneys—weight, left, 113 grms.; right, 113 grms.; pale; very little pelvic fat; capsule strips easily. Pancreas—weight, 80 grms. Thyroid gland—weight, 45 grms. Intestines normal.

Microscopical Report.—Extensive diffuse chromatolytic changes in the nerve cells. Chronic pleurisy with an acute fibrino-plastic inflammation superadded. Pulmonary emphysema, red and gray hepatization and gangrene of the lungs. Tendency to cystic dilatation of the thyroid vesicles with filling of the smaller ones with proliferated epithelial cells. Extensive diffuse nephritis.

(10.) *Terminal Dementia:*

1976. M. C., male, æt. 30, white, single, labourer, first admission.

Duration of psychosis, 2 years 3 months.

Cause of death, typhoid fever.

Clinical Report.—Admitted 24th July, 1907. Physical condition good. Very impertinent in manner and irrational in conversation. His mental condition remained unchanged during his residence in hospital. On September 22nd, 1909, patient developed typhoid fever and ran a very severe course, having had several hæmorrhages, from which he never fully recovered, and died on 21st October. September 24th and 27th, 1909—Widal's reaction, 1:20 to B. typhosus, negative. October 1st, 1909—Widal's reaction, 1:20 to B. typhosus, positive.

Pathological Report.—Emaciated; cranial bones not thickened; dural adhesions along the superior longitudinal sinus; extensive diffuse opacity of the arachnoid. Brain—weight, 1,558 grms.; no œdema; basal vessels somewhat thickened. Heart—weight, 283 grms. Lungs—weight, left, 512 grms.; right, 594 grms.; no nodules; rather pale; slight black subpleural pigmentation. Liver—weight, 1,601 grms. Spleen—weight, 219 grms.; firmly adherent to diaphragm, enlarged and tough; capsule adherent. Kidneys normal. Intestines, no perforation or fluid in peritoneal cavity; large intestine not ulcerated but considerably roughened; large typhoid ulcers in cæcum and extending for 18 inches up small intestine; bed of ulcers very thin, only lining of peritoneum being left; intestine very much congested. Appendix normal; some mesenteric glands enlarged; small agonal or post mortem intussusception about three feet from cæcum; no adhesions.

Microscopical Report.—Very slight irregularity in the staining of the nerve cells. Hyperplasia of the malpighian bodies of the spleen. Pure cultures of B. typhi abdominalis isolated from the spleen post mortem, also from peripheral blood on 3rd October.



Day Room for Female Patients.

(11.) *Terminal Dementia* :

1384. J. D., female, æt. 43, white, married, three children, housewife, first admission.

Duration of psychosis, 6 years 9 months.

Cause of death, pulmonary tuberculosis.

Clinical Report.—Admitted 20th January, 1903, in rather poor physical condition, quiet in manner, but had marked delusions of persecution. Her physical condition gradually improved for a few months, then she began to lose weight and developed a slight cough, with considerable expectoration. Examination of right lung revealed a slight dullness and rales with diminished expansion. Her condition gradually became worse, and during the last few months of her life she had several small pulmonary hæmorrhages, and on 29th October she had a severe hæmorrhage, which was the cause of her death.

Pathological Report.—Emaciated; rigor mortis developed. Brain not examined. Heart—weight, 255 grms.; no atheroma or valvulitis. Lungs—weight, left, 503 grms.; right, 567 grms. Left lung firmly adherent generally; no nodules or cavities; engorgement of lower lobe; no fluid in cavity. Right lung tenaciously adherent, especially at apex; cavity obliterated by adhesions; extensive cavity formation and infiltration with pus and “cheesy” masses and particles; pleura markedly thickened; bronchioles filled with a muco-purulent secretion. Liver—weight, 1,460 grms; pale; capsule not adherent; three deep depressions under and corresponding to the ninth, tenth and eleventh ribs; also a small fourth lobe, shaped like a fish’s tail; gall bladder almost empty; no calculi. Spleen—weight, 184 grms.; pale and pulp very soft; capsule adherent. Kidneys—weight, left, 92 grms.; right, 127 grms.; pale; capsules not adherent. No fluid in peritoneal cavity; mesenteric glands not enlarged; pancreas tough but not enlarged; uterus, ovaries and intestines normal.

Microscopical Report.—Extensive fibrosis of the right lung with diffuse foci and areas of typical tubercular consolidation and degeneration, in various stages of fibrosis, pigmentation and caseation; bronchioles filled with a bloody-muco-purulent fluid; diffuse caseation of the bronchial glands; fibroid thickening of the pleura; intense hyperplasia of the malpighian bodies of the spleen. Smears from both lungs show T. B. Cerebro-spinal fluid negative.

(12.) *Terminal Dementia* :

1667. Male, æt. 49, white, single, soldier, first admission.

Duration of psychosis, 3 years.

Cause of death, pulmonary tuberculosis.

Clinical Report.—Admitted 27th August, 1905; was quite disturbed and had given the officers considerable trouble while conducting him to the Hospital. After his admission, his condition remained practically unchanged for some months, when he gradually became more untidy, and occasionally dirty in his habits. In October, 1908, patient developed a cellulitis of right leg, resulting in a great deal of sloughing. This condition progressed slowly and favourably, and was almost healed at the time of his death on 25th July.

Pathological Report.—Emaciated; large scar on right leg, resulting from a cellulitis; old scar on left fore-arm; circumcised, but no cicatrix of chancre; extensive fibrous dural adhesions to bone and arachnoid; subarachnoidean fluid increased; opacity and plaques of arachnoid. Brain—weight, 1,431 grms.; hemispheres adherent on their mesial surfaces of the frontal lobes; slight convolitional atrophy right frontal lobe; foramina of Munroe dilated. Heart—weight, 262 grms.; moderate arterio-sclerosis with atheromatous degeneration; muscles somewhat flabby and pale. Lungs—weight, left, 921 grms.; right, 1,063 grms.; firm pleuritic adhesions

on both sides ; pleura thickened. Left lung small and collapsed, no fluid in cavity, hard, solid and very nodular ; on section extensive tubercular cavity formation and infiltration, cavities being full of "cheesy" masses of pus. Right lung, on section numerous tubercular cavities varying in size ; infiltration with pus and "cheesy" particles ; no fluid in cavity. Bronchioles filled with a muco-purulent secretion ; bronchial glands enlarged and pigmented. Liver—weight, 1,289 grms. ; fatty infiltration, having a nutmeg appearance on section, capsule firmly adherent. Spleen—weight, 85 grms. Kidneys—weight, left, 155 grms. ; right, 141 grms. ; pale on section ; capsules adherent. No fluid in peritoneal cavity. Agonal or post-mortem intussusception of small intestine, three inches in length, three feet from cæcum ; no adhesions. No congestion or ulceration of intestines ; appendix contained fæcal matter. Mesenteric glands not enlarged.

Microscopical Report.—Moderate chromatolytic changes in the nerve cells. Extensive thickening of the dura by round cell accumulation involving the vascular spaces with thickening of the vessel walls. The perivascular spaces and blood vessels show a leukocytic accumulation and infiltration with more or less degeneration ; other portions show intense engorgement of the vessels, with rupture of some and filling of the vesicles with blood ; other portions more or less emphysema. Considerable perivascular and peribronchial pigmentary infiltration ; peribronchial consolidation ; tubercular infiltration of the bronchial glands ; chronic diffuse nephritis ; cerebro-spinal fluid negative. Smears from both lungs show T. B.

(13.) *Therminial Dementia :*

1121. W. F., male, æt. 45, white, single, coal miner, first admission.

Duration of psychosis, 8 years.

Cause of death, pneumonia, septic peritonitis.

Clinical Report.—Admitted 26th April, 1901 ; was very excited and delusional, which condition continued during his residence in the Hospital. Had never been able to get a personal or family history from him. Died on 13th April.

Pathological Report.—Several old scars on nose ; abdomen distended and tympanitic ; scalp thickened and very adherent ; cranial bones thickened and hard ; dura thick, tough and adherent along superior longitudinal sinus ; opacity and fibrous spots of arachnoid ; sub-arachnoidean fluid increased. Brain—weight, 1,492 grms. ; pia generally adherent ; œdema of convolutions, vessels congested and dilated. Heart—weight, 342 grms. ; aortic and tricuspid valves sclerotic ; arterio-sclerosis with atheromatous degeneration ; large clot in left ventricle, heart rather flabby and muscle pale. Lungs—weight, left, 467 grms. ; right, 1,615 grms. Left lung adherent to pleura, diaphragm and pericardium ; anthracosis ; no nodules or solidification. Right lung, a few firm adhesions to pleura ; anthracosis ; solid ; on section red and gray hepatization, exudatous and ooze a bloody fluid. Bronchial glands enlarged and pigmented. Liver—weight, 1,814 grms. Spleen—weight, 269 grms. Kidneys—weight, left, 148 grms. ; right, 141 grms. Omentum congested ; intestine dilated from splenic flexure to cæcum ; no perforation. Mesentery thickened and glands enlarged ; 900 c. c., purulent fluid permeating the whole peritoneal cavity.

Microscopical Report.—Moderate arterio-sclerosis, with more or less atheromatous degeneration. Diffuse pigmentation of the bronchial glands. Intense alveolar engorgement, with rupture of some of the capillaries and filling of the vesicles with blood ; some leukocytes and epithelial cells. Peribronchial pneumonic consolidation. Smears from right lung show pneumococci ; smears from peritoneal fluid show streptococci. Cerebro-spinal fluid, negative.

(14.) Terminal Dementia :

1676. Male, æt. 65, white, single, labourer, first admission.

Duration of psychosis, 3 years.

Cause of death, pulmonary tuberculosis.

Clinical Report.—Admitted 27th September, 1905. Was very quiet and reserved. Physical condition fair, had pronounced delusions of persecution which had existed for some time previous to his admission. Patient's condition remained unchanged until the latter part of 1908, when he began to lose flesh and developed a sore on the right cheek, which had the appearance of an epithelioma, but later healed, and on examination of lungs found them both affected. This was finally the cause of his death on 2nd September. August 16th, 1909, T. B. found in sputum.

Pathological Report.—Emaciated ; scar on right cheek ; cranial bones not thickened but hard ; extensive dural adhesions ; dura thick and tough ; opacity and fibrous spots and bands of arachnoid ; subdural fluid increased. Brain—weight, 1,445 grms. ; pia not thickened but generally adherent ; no marked œdema. Heart—weight, 297 grms. ; aortic valve sclerotic with atheromatous degeneration ; coronaries slightly caseous ; pericardium thickened. Lungs—weight, left, 1,488 grms. ; right, 1,106 grms. Left lung firmly adherent to pleura, pericardium and diaphragm ; pleura about a quarter inch thick ; lobes hard and nodular ; one section shows extensive tubercular cavity formation, cavities being full of foul smelling pus and hard “cheesy” masses ; no fluid in pleural cavity ; cavity obliterated by fibrous adhesions. Right lung, apex shows extensive tubercular cavity formation ; cavities full of foul-smelling pus and hard “cheesy” matter ; other portions nodular and tenaciously adherent to pleura ; middle and lower lobes nodular and firmly adherent, infiltrated with pus and cheesy particles ; 900 c. c., greenish-coloured serous fluid in right pleural cavity. Liver—weight, 1,672 grms. ; nutmeg appearance on section ; capsule firmly adherent. Spleen—weight, 134 grms. ; engorged ; malpighian bodies prominent ; capsule adherent. Kidneys—weight, left, 148 grms. ; right, 141 grms. Peritoneal cavity contained 1,500 c. c., clear, yellowish-coloured serous fluid. Mesenteric glands not enlarged ; omentum and peritoneum not thickened or congested ; no ulceration of intestines. Pancreas slightly enlarged and tough.

Microscopical Report.—Moderate degenerative changes in the nerve cells. Extensive thickening of the dura by round cell accumulation, involving the vascular spaces. In some portions of the tips of the convolutions the perivascular spaces and blood-vessels show a leukocytic accumulation and infiltration. Chronic sclerosis of the aortic valve, with moderate atheromatous degeneration and caseation of the coronaries. Considerable irregularity of size in the thyroid gland vesicles, with infiltration of the colloid material in the smaller ones. Intense engorgement of the alveolar capillaries, with rupture of some, filling the surrounding vesicles with blood, foci and masses of tubercular consolidation in various stages of degeneration in the lungs ; other portions more or less emphysema. Considerable perivascular and peribronchial pigmentary infiltration. Tubercular pleurisy. Hyperplasia of the lymph follicles and tubercular infiltration of the bronchial glands. Hyperplasia of the malpighian bodies of the spleen. Moderate portal cirrhosis. Cerebro-spinal fluid, negative. Fluid in peritoneal cavity no T. B.

(15.) Paresis :

2287. J. C., male, æt. 48, Indian, married, fisherman, first admission.

Duration of psychosis, 3 months 9 days in hospital.

Cause of death, pneumonia, double.

Clinical Report.—Admitted 18th November, 1908; was well advanced in paresis; pin-point pupils; tongue tremulous; marked Rhombert. Had slight seizure on February 1st, and from that time he was very restless and destructive to his clothing. Developed pneumonia on February 10th. Died 21st February. February 8th, 1909, sputum examination negative; 19th, pneumococci found.

Pathological Report.—Two old scars over right femoral glands; frænum præputii missing; no cicatrix of chancre. Cranial bones hard and somewhat thickened; dura tenaciously adherent; slight increase in subarachnoidean fluid; opacity of arachnoid; adhesions over parietal verices. Brain—weight, 1,403 grms.; pia generally adherent; both frontal lobes atrophied with two large depressions under right temporal bones; no signs of an old fracture. Heart—weight, 311 grms.; muscle pale; aortic valve sclerotic; arterio-sclerosis with atheromatous degeneration. Lungs—weight, left, 793 grms.; right, 921 grms.; engorgement; red and gray hepatization. Right lung tenaciously adherent at base; middle lobe contained a pocket of pus; gangrenous at base; anthracosis of both lungs. Liver—weight, 1,544 grms.; rather pale; capsule not adherent. Spleen—weight, 63 grms.; small and pale; capsule not adherent. Kidneys—weight, left, 155 grms.; right, 162 grms.; rather pale; capsules not adherent. “Hour-glass” stomach; band of constriction about three inches from pylorus; stomach dilated and extending almost completely across abdominal cavity.

Microscopical Report.—Extensive chromatolytic changes in the nerve cells. Basal vessels thickened. Moderate arterio-sclerosis and irregular atheromatous degeneration. Intense engorgement of the pulmonary capillaries and peribronchial pneumonic consolidation; bronchial mucosa swollen and congested. Intense alveolar engorgement with rupture of some of the capillaries and filling of the vesicles with blood; some leukocytes and epithelial cells. Smears from both lungs show diplococci pneumoniæ and pus cells.

(16.) *Paresis:*

2251. E. W., male, æt. 45, white, single, labourer, first admission.

Duration of psychosis, 8 months in hospital.

Cause of death, paresis.

Clinical Report.—Admitted 6th September, 1908, with well-marked symptoms of paresis, which condition gradually progressed until his death on 21st April.

Pathological Report.—Emaciated; several old scars on legs and over inguinal glands; circumcised, but no cicatrix of chancre; scalp thin; cranial bones compact; diffuse opacity of the arachnoid; increase of subdural and subarachnoidean fluid; firm dural adhesions along the superior longitudinal sinus. Brain—weight, 1,339 grms.; pia generally adherent; atrophy right frontal lobe. Heart—weight, 219 grms.; small but not atrophied; moderate sclerosis of aorta. Lungs—weight, left, 467 grms.; right, 694 grms. Left lung engorged at base; no adhesions or nodules; slight subpleural pigmentation. Liver—weight, 807 grms.; small but not atrophied; capsule adherent. Spleen—weight, 96 grms.; small but not atrophied. Kidneys—weight, left, 113 grms.; right, 89 grms.; small but not atrophied; firm on section; very little pelvic fat; capsules adherent. Other abdominal organs normal.

Microscopical Report.—Extensive degenerative changes in the nerve cells; perivascular spaces prominent; areas of round cell infiltration of the pia and surrounding the pial sheath into the brain substance; central canal of the cord filled with cells; convolitional atrophy of the right frontal lobe cerebrum; moderate arterio-sclerosis; cerebro-spinal fluid negative.



Hospital Laboratory.

(17.) Paresis :

2194. W. K., male, æt. 48, white, single, labourer (had been a marine), first admission.

Duration of psychosis, 10 months in hospital.

Cause of death, valvular disease of the heart.

Clinical Report.—Admitted 18th June, 1908, with marked symptoms of paresis. Patient's physical condition gradually improved for some time after his admission. Physical examination revealed a marked cardiac enlargement, with both mitral and aortic murmurs. Had several slight seizures during his residence. On March 1st showed marked signs of a failing compensation, which condition steadily grew worse until the time of his death on 19th April.

Pathological Report.—Well nourished ; tattoo marks on left forearm ; circumcised, but no cicatrix of chancre ; scalp thick and cartilaginous ; cranial bones thickened and adherent ; dura thick, tough, fibrous adhesions ; subdural fluid increased ; diffuse opacity of the arachnoid. Brain—weight, 1,467 grms. ; pia adherent, especially in fissures of convolutions ; no œdema or atrophy. Heart—weight, 1,190 grms. ; “beef-heart,” chronic arterio-sclerosis with atheromatous degeneration and caseous patches ; mitral valve greatly thickened and sclerotic ; aortic valve much thickened and sclerotic, with caseation of the coronaries. No marked valvulitis on right side, but auricle and ventricle very much dilated and fatty. Lungs—weight, left, 526 grms. ; right, 595 grms. ; subpleural pigmentation ; lower lobe right lung congested and fairly solid. Liver—weight, 1,445 grms. ; fatty infiltration ; capsule adherent. Spleen—weight, 162 grms. ; fatty infiltration ; capsule adherent. Kidneys—weight, left, 242 grms. ; right, 228 grms. ; fatty degeneration ; capsules adherent ; cortex pale ; 750 c. c. clear, serous fluid in peritoneal cavity. Omentum and mesentery very fatty ; mesenteric glands not enlarged ; intestines normal.

Microscopical Report.—Extensive degenerative changes in the nerve cells. Considerable round cell infiltration in the dura ; blood-vessel walls thickened ; perivascular spaces prominent and mostly filled with proliferated epithelial cells, which also extend into the central gelatinous substance. Chronic arterio-sclerosis with atheromatous degeneration ; moderate fatty infiltration of the right ventricle of the heart ; considerable chronic myocarditis. Moderate endarteritic proliferation of the intima ; hyperplasia of the malpighian bodies of the spleen ; interstitial hæpatitis ; peritoneal fluid negative ; cerebro-spinal fluid negative.

(18.) Paresis :

2406. S. O., male, æt. 30, Japanese, fisherman, first admission.

Duration of psychosis, 5 months in hospital.

Cause of death, pneumonia, empyema, pericarditis, pulmonary tuberculosis.

Clinical Report.—Admitted 26th June, 1909, with marked symptoms of advanced paresis. Impossible to get any history, as he could not speak English. His condition rapidly became worse, becoming destructive to his clothing and dirty in his habits. On examination of chest, found a dulness in right side, also a scar resulting from operation for empyema. On 25th October patient developed pneumonia, which was the immediate cause of his death on October 31st.

Pathological Report.—Old scar over sixth rib, right side ; cranial bones thickened and adherent to dura generally ; dura thick, tough and adherent to arachnoid over parietal verices with fibrous bands ; arachnoid not opaque, but contained some plaques ; subarachnoidean fluid slightly increased. Brain—weight, 1,474 grms. ; pia adherent, especially in fissures of convolutions ; slight œdema of convolutions. Heart—weight, 228 grms. ; moderate aortic atheroma ;

no valvulitis; increase of pericardial fluid. Lungs—weight, left, 765 grms.; right, 481 grms. Left lung, no fluid or adhesions in cavity; extensive anthracosis; red and gray hepatization; exudatous on section. Right lung, the whole solid on section, firmly adherent all round to costal pleura, diaphragm and pericardium; cavity contained 1,700 c. c. purulent fluid; extensive cavity formation and infiltration with pus at apex. On dissection, piece of sixth rib missing and scar corresponding, result of old empyema operation; ends of bone covered with periosteum. Liver—weight, 1,389 grms.; extensive fatty infiltration; “nutmeg”; small cyst adherent to capsule; capsule firmly adherent. Spleen—weight, 141 grms.; “nutmeg”; capsule adherent. Kidneys—weight, left, 163 grms.; right, 134 grms.; normal. Intestines and other abdominal organs normal.

Microscopical Report.—Moderate chromatolytic changes in the nerve cells. Extensive thickening of dura by round cell accumulation, involving the vascular spaces; pericarditis; moderate aortic atheroma. Apex right lung shows dense tubercular infiltration, with more or less degeneration; other portions show intense engorgement of the vessels, with rupture of some and filling of the vesicles with blood; other portions more or less emphysema. Considerable perivascular and peribronchial pigmentary infiltration; chronic tubercular pleurisy; interstitial hepatitis. Smears from right lung show T. B.; from left lung pneumococci and pneumobacilli. Smears from pus in pleural cavity show T. B. Cerebro-spinal fluid negative

A Case of Infection by the Anguillula Intestinalis, Complicated with Carcinoma of Stomach and Perforation of Antrum Pylori into Transverse Colon.

(19.) *Paresis:*

1693. J. C., male, æt. 61, white, single, labourer, second admission.

Duration of psychosis, 3 years 5 months.

Cause of death, gastric carcinoma, perforation of stomach.

Clinical Report.—Admitted 10th November, 1905. From 5th to 15th September, 1908, patient had intestinal trouble; suspected typhoid fever; Widal's reactions negative; temperature subnormal; recovered and went back to work on the farm. December, 1908, eloped from farm and went to Seattle. On 13th March, 1909, returned to Institution on his own accord. On 15th March his blood count was: reds, 4,575,000; leukocytes, 13,120; hæmoglobin, 75 per cent.; colour index, 0.825. Urine examination 16th March; acid, S. G. 1.015; amber colour and clear, no albumen or sugar; traces of urobilin; no casts, hæmoglobin or blood cells. On 5th April commenced vomiting; filariform and rhabditiform embryos and eggs of the *anguillula intestinalis* found in vomited material. April 6th, same found in foul smelling stool following calomel and mag. sulph.; no diarrhœa; patient constipated and not passing the typical pasty stools of *anguillula intestinalis* infection. No carcinoma cells found in either vomited material or stools. Stool incubated for five days at 37° C., to hatch out the parasitic mother worm, but not successful. Died on 25th April.

Pathological Report.—Very emaciated; all organs small but not atrophied. Patient was a big man, six feet tall, and had been robust. Brain—weight, 1,431 grms. Heart—weight, 234 grms. Liver—weight, 1,098 grms. Spleen—weight, 64 grms. Kidneys—weight, left, 134 grms.; right, 142 grms. Intestines normal from rectum to transverse colon. At antrum pylori the transverse colon, meso-colon and stomach were connected by a hard glandular growth; antrum pylori perforated through greater curve into transverse colon and a direct passage, admitting two fingers, leading from stomach, through transverse meso-colon into transverse colon, was found. The pylorus was blocked, and this perforation acting as a false pylorus. The passage was surrounded with a hard glandular growth, the size of a goose egg,

no fluid or fecal matter in peritoneal cavity. Stomach atrophied, contracted, "hour-glass," hard and nodular, and was in some places very thin. A hard, ulcerative carcinomatous mass was found, extending completely round inner wall, and from pylorus four inches back. Transverse colon, for one and a half inches round edges of perforation, very much thickened, atrophied, ulcerative and carcinomatous. Some of the mesenteric glands very much enlarged and hard. Ascending colon, cæcum and small intestine appeared normal. Great omentum congested, and some of the glands enlarged and hard. Pancreas enlarged, hard and tough.

Microscopical Report.—Filariform and rhabditiform embryos and eggs of the *anguillula intestinalis* found in bile smears, smears from liver, walls of large and small intestine and stomach, but not found in smears from spleen, kidneys or lungs. Section made from the stomach cancer contained a longitudinal section of a filariform embryo of the *anguillula intestinalis* imbedded in it. Sections made from growth in stomach and transverse colon; also from enlarged mesenteric gland and pancreas; all the sections show carcinoma. The rhabditiform embryos measure about 0.03 to 0.3 m. m. They possess an œsophagus which, after a constriction, dilates into an ovoid enlargement, constricted at either end and continuous with the intestine, which ends in the anus, situated towards the base of the tail. The filariform embryos measure about 0.4 m. m. They possess a cylindrical œsophagus descending to about the middle of the body, and have a tail which is truncated at its extremity. There is no horny armature to mouth, or striations on the body of either embryo. The eggs are of a greenish-yellow colour, slightly opaque and finely granular, and measure about 0.006 m. m. in their greatest diameter.

It is worthy of note that, while numerous filariform and rhabditiform embryos and eggs of the *anguillula intestinalis* were found, during life and in the stools and vomited material, and also in the bile, liver, large and small intestine and stomach post mortem, neither male nor female mature worm could be demonstrated at any time.

There is no evidence to show whether infection originally took place through the filariform larvæ, or auto-infection with the larvæ, without the intervention of the sexually differentiated forms, by direct transformation from the rhabditiform embryos of the mother worm.

This is, apparently, the first recorded case of infection by the *anguillula intestinalis* complicated with gastric cancer and perforation of the intestine, and, from the above, it would appear that sexually mature intermediate generation does not develop in the intestinal tract during life.

Simon says: "The time elapsing between infection with the filariform larvæ and the appearance of rhabditiform embryos in the stools is about 17 days."

The parasite is the recognised cause of the so-called Cochin-China diarrhœa, and is of further interest from its resemblance to *Anchlostoma duodenale*, with which it is not infrequently found associated. Excepting in very rare instances, it does not cause intestinal ulceration, and it is supposed that the injurious effects of the parasite are purely mechanical. It is possible, however, that these may also be due to the irritating action of its excretory products. The clinical manifestations of the disease are mainly those of a chronic diarrhœa and a comparatively mild anæmia. There are usually three or four pasty stools a day.

The organism was first discovered in individuals who had contracted severe diarrhœa in Cochin-China. Grassi and Parona later found the worm in Italy, and at the building of the St. Gotthard tunnel it was frequently seen in association with the *Anchlostoma*. Thayer was the first to find it in the United States, and it is interesting to note that two of his three cases must have become infected in either Maryland or Virginia. The third case may have been

originated in Austria; in it the anguillula was associated with amœba and the *Trichomonas intestinalis*; it ended fatally, being complicated with liver abscess. Since then additional cases have been reported in the United States by Moore and Price. Other cases have been observed in Belgium, Holland, Martinique, Brazil, Sicily, the Dutch Indies, Egypt, Germany, Spain and the Philippine Islands.

URINALYSIS.

The following table will show the number of examinations made and the findings:—

Total number of specimens examined		270.	
Albumen	6	Sugar	2
Phosphates	10	Urates	59
Calcium oxalate	4	Mucin	3
Urobilin	97	Bile pigments	0
Cells :		Casts :	
Blood	7	Hyalin	44
Pus	19	Epithelial	33
Epithelial	75	Granular	32
Fatty	1	Blood	2
Hæmoglobin	7	Fatty	1
Molds	2	Spermatazoa	3
Lead	2	Mucin	3
Ehrlich's diazo test :		Hippuric acid	1
Positive	2	Leucin	1
Negative	4	Tyrosin	2

In the large majority of our cases of manic depressive insanity and acute mania, amorphous sodic urate has been found in excess in the urine. This excess cannot be due to fermentation, as the specimens were generally examined too closely following the voiding for fermentation to take place; but the longer the urine stands the heavier the precipitate of urates, up to a certain point. In most of these cases also hyaline and granular casts, epithelial cells and urobilin were found, while in two cases positive Ehrlich's diazo reactions were obtained. No clinical symptoms of a febrile condition were evidenced, and repeated serum agglutination tests and sputum examinations were negative. It is of interest to note that the only apparent cause for this excess of urates in the urine is a disturbance of the general nutrition characterised by a uric acid diathesis. This excess is incidental with the leukocytosis, so frequently found in these cases (*see* notes on Histology), and appears to afford strong evidence towards clearing up the debatable point of the causation. It is highly improbable that the excess of urates is the immediate causation of the leukocytosis (uric acid being present in the blood in leukemia), while if the suggestion that the uratemia is caused by a disturbance of the general nutrition is entertained, then the leukocytosis can be attributed to impaired nutrition. While the abatement of mental excitement and an increase in body weight are generally incidental with mental improvement in this class of cases, the earlier stages of the improvement may generally be much more closely observed by the diminution in the number of leukocytes in the peripheral blood, and the gradual reduction of urates in the urine, for those individuals who evidence these characteristics and who are the large majority under these headings of insanity. Whether the presence of urates has any bearing on the maniacal condition or not has not been determined; but uric acid probably does act on the nerve centres, and that it does produce headaches, as in gout and epilepsy, is an established fact. In our cases, apparently, the urates did not pass into the insoluble crystalline condition (in which symptoms of gout are manifest), but, the reaction of the urine being always acid, were excreted before they reached the insoluble stage.



Bursar's Office and Record Room.

HISTOLOGY.

Blood Counts in the Insane.

Not being able to find much literature on the subject of the condition of the blood in insanity, and even what little there is varying so much in the conclusions arrived at, a blood examination has been undertaken for each admission to this Hospital since November 4th, 1908, with a view to drawing some authentic conclusion from the statistics compiled. Altogether 277 counts have been made on 270 cases; the appended table will show the results of the red and white count, the figures, unless otherwise specified, representing the first count made on admission. The cases have been classified under the headings of the various forms of insanity in order to facilitate comparison:—

MANIC DEPRESSIVE.

Sex.	Reds.	Whites.	Sex.	Reds.	Whites.	Sex.	Reds.	Whites.
M	3,680,000	10,640	F	4,080,000	5,600	M	5,360,000	7,200
F	4,048,000	18,720	M	4,320,000	5,400	M	4,550,000	11,200
F	3,870,000	11,640	M	4,340,000	18,240	M	4,538,000	9,280
F	4,098,400	14,800	F	3,775,200	21,200	M	4,866,000	10,560
M	1,800,000	9,360	M	4,754,000	11,420	F	4,182,000	14,360
F	4,300,000	14,380	F	4,332,000	12,420	F	4,238,000	14,440
M	4,624,000	12,000	M	4,700,000	14,260	M	4,600,000	11,280
M	4,428,000	11,460	M	4,600,000	12,580	F	4,430,000	7,240
M	4,824,000	13,240	F	4,450,000	5,460	M	4,768,000	11,800
F	4,460,000	13,420	F	4,600,000	12,840	M	4,880,000	11,620
M	4,842,000	7,680	M	4,886,000	7,260	M	4,620,000	10,440
F	3,868,000	12,260	M	4,764,000	9,380	M	4,728,000	17,420
M	4,866,000	12,800	M	4,886,000	21,200	F	4,100,000	15,200
M	4,800,000	7,260	F	4,380,000	13,640	M	4,868,000	11,280
F	4,400,000	14,260	M	4,680,000	10,220	M	4,748,000	13,200
F	4,300,000	6,600	M	4,800,000	12,200	M	5,100,000	8,280
F	4,480,000	13,200	F	4,400,000	9,200	F	4,460,000	8,300
M	5,120,000	6,800	M	4,800,000	7,300	M	4,960,000	11,600
M	4,826,000	8,200	F	4,250,000	13,000	F	4,320,000	10,200
F	4,400,000	8,300	M	4,860,000	15,320	F	4,480,000	7,300

ACUTE MANIA.

M	4,866,000	21,200	M	4,780,000	18,600	F	4,520,000	14,380
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PARESIS.

M	3,920,000	9,840	M	4,480,000	4,800	M	4,000,000	8,800
M	4,720,000	17,440	M	4,880,000	9,360	M	5,248,000	18,720
M	4,340,000	18,240	M	4,727,000	16,240	M	4,754,000	11,420
F	4,320,000	9,640	M	4,848,000	12,240	M	4,792,000	10,600
M	4,834,000	9,280	M	4,728,000	9,360	M	4,600,000	6,800
M	4,668,000	8,720	M	4,660,000	8,640	F	4,340,000	13,280
M	4,820,000	11,180	M	4,794,000	9,820	F	4,320,000	9,180
M	4,600,000	10,200	M	4,900,000	8,200	M	5,327,000	18,720
M	5,220,000	8,000	M	4,740,000	13,200	M	4,868,000	9,600
M	4,648,000	13,600	M	4,920,000	10,200	M	4,700,000	8,260
F	4,400,000	9,280						

DEMENTIA PRÆCOX.

M	4,272,000	11,840 †	M	4,320,000	12,480 †	F	4,352,000	9,360
M	3,248,000	12,800	M	4,352,000	9,360	M	4,900,000	7,320
M	5,440,000	7,440	M	4,600,000	5,600	M	4,100,000	11,200
M	3,700,000	11,840	M	4,880,000	7,200	M	4,823,000	6,400
M	4,680,000	10,000	M	4,640,000	14,960 †	M	4,280,000	9,360
M	4,960,000	8,680	M	4,375,000	11,240	M	4,260,000	10,200
M	4,840,000	8,460	M	4,424,800	7,440	M	4,640,000	9,400
M	4,937,000	7,440	M	5,000,000	10,800	M	4,720,000	10,000
M	4,984,000	11,200	M	4,680,000	11,200	M	4,730,200	11,000
M	4,600,000	9,460	M	4,820,000	9,200	F	4,400,000	11,320
M	4,940,000	10,220	M	4,942,000	8,440	M	4,890,000	8,160
M	4,768,000	9,840	F	4,600,000	5,600	M	4,680,000	9,340
M	4,735,000	11,460	M	5,249,600	8,720	F	2,680,000	18,640 †
M	4,466,000	15,240	M	4,900,000	6,400	M	4,780,000	8,820
M	4,800,000	11,260	M	4,840,000	7,620	M	4,668,000	12,840
M	4,780,000	8,260	M	5,120,000	12,380	F	4,380,000	6,300
M	5,120,000	8,600	M	4,900,000	6,600	F	4,480,000	8,200
M	5,020,000	10,200	M	4,768,000	11,000	M	4,800,000	12,380
F	4,127,000	10,400	F	4,520,000	15,200	M	5,120,000	8,800
M	4,700,000	8,800	M	4,920,000	10,420	M	4,620,000	14,320
M	3,860,000	9,800 †	M	4,900,000	8,640	M	4,860,000	7,600
M	5,300,000	9,280	M	4,840,000	9,000	F	4,520,000	6,240
F	4,400,000	7,600	M	5,100,000	7,200	M	4,730,000	10,200
M	4,980,000	9,360	M	4,880,000	8,000	M	4,840,000	10,200
M	4,400,000	12,160						

MELANCHOLIA.

F	4,400,000	10,000	F	2,875,000	14,125	M	3,960,000	13,760
F	4,120,000	16,800 *	M	4,900,000	11,840	F	4,240,000	12,230
F	4,549,000	11,810	M	4,780,000	21,200 *	F	4,520,000	6,580
F	4,400,000	10,140	F	4,460,000	7,200	F	4,600,000	8,600
M	4,800,000	14,260	M	4,650,000	8,420	F	4,520,000	10,240
F	4,400,000	8,340	M	4,700,000	8,600	F	4,420,000	6,280

SENILE DEMENTIA.

M	4,132,000	7,300	M	4,600,000	10,400	M	4,174,000	10,560
M	4,266,400	16,240	M	4,420,000	12,300	M	4,800,000	9,300
F	2,700,000	10,000	M	4,748,000	8,260			

ORGANIC DEMENTIA.

M	4,824,000	13,120	M	4,176,000	3,280	M	4,320,000	13,680 †
M	4,527,000	4,960 †						

TETANY.

F	4,974,000	14,960	F	4,949,600	17,440 †			
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EPILEPSY.

M	4,800,000	7,320	F	3,155,200	18,080	M	4,530,000	16,480
M	4,842,000	12,460						

IMBECILITY AND IDIOCY.

M	4,649,600	14,320	M	4,842,000	12,460	F	4,300,000	8,680
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* Acute cases. † Count made after patient had been in the hospital some months.

TOXIC INSANITY.

M	5,177,600	7,440	M	4,024,000	13,760	F	4,112,000	11,840
F	3,870,000	11,640	M	4,574,400	9,360	M	4,820,000	10,240
M	4,882,000	13,120	M	4,788,000	10,280	F	4,282,000	13,380
M	4,900,000	8,280	M	4,720,000	12,480	M	4,932,000	7,460
M	4,842,000	12,200	F	4,240,000	12,620	M	5,020,000	9,650
F	4,800,000	8,000	M	4,640,000	11,000	M	4,740,000	11,200

PARANOIA.

M	2,400,000	16,800	M	4,620,000	10,560	M	4,225,000	8,080
M	4,352,000	9,360	M	5,656,000	13,680	M	5,240,000	7,200
M	4,600,000	17,440	M	4,021,600	10,000	M	4,824,000	10,120
M	5,000,000	10,800	M	4,764,000	11,200	M	4,890,000	8,160
M	4,872,000	10,200	F	4,600,000	8,240	M	4,896,000	8,080
M	4,880,000	9,600	M	4,780,000	8,260	M	5,220,000	11,290
M	4,296,000	8,440	M	4,680,000	8,800	M	5,000,000	7,300
F	4,520,000	6,800	M	4,580,000	12,240	M	4,900,000	8,260
M	5,180,000	8,200	M	4,900,000	8,200	F	4,300,000	11,200
M	4,940,000	6,840	M	4,800,000	11,300	F	4,620,000	6,500
M	4,700,000	8,240	M	4,848,000	7,800	M	4,900,000	8,300

TERMINAL DEMENTIA.

M	5,160,000	12,400	M	4,920,000	7,820	M	4,812,000	13,680
M	4,575,200	13,120 †	F	4,422,000	12,260	M	4,620,000	11,400
F	4,520,000	8,080	F	4,400,000	7,440	M	4,784,000	7,400
M	4,800,000	8,260	M	3,467,000	13,240 †	F	4,400,000	9,340
M	5,020,000	9,650	F	4,470,000	10,000	M	4,780,000	11,220
M	4,800,000	8,620	M	4,400,000	8,620	M	4,740,000	8,660
F	4,360,000	9,400	M	4,860,000	10,600	M	4,880,000	9,300

* Acute cases. † Count made after patient had been in the hospital some months.

In many of the previous investigations recorded, the authors have either omitted, or neglected to mention, the relation of their counts to food, hot and cold baths, altitude above sea-level, menstruation, etc. In all probability, the omission of this important data accounts for the wide variation and conflicting results recorded. The blood counts made here have all been conducted, as far as possible, under similar conditions, in order to eliminate any error that may occur, statistically and clinically, from blood taken under conditions where it would vary from normal (this condition not being due to the psychosis), such as shortly after food, immediately after or during a hot or cold bath, after a considerable quantity of liquid has been taken, during menstruation, lactation, etc. All the cases were well past the age of puberty.

The red and white cell enumerations have been made with a Thoma-Zeiss hæmacytometer, using Hayem's fluid for the reds, and a 0.33 per cent. acetic acid and gentian violet solution for the whites. In the differential counts Wright's stain has been used throughout, and for the hæmoglobin estimation *v. Fleischl's* hæmoglobinometer up to July; since then Tallqvist's hæmoglobin scale has been employed as being more convenient.

This Institution being practically at sea-level, and all counts being made from peripheral blood taken from the finger at least two hours after ordinary meals, and never immediately after bathing, makes the results comparable. In making the red counts, 16 fields of 16 squares have been counted, then the slide cleaned, and the same number of squares counted in the second drop. In enumerating the leukocytes, the entire field of 16 large squares is counted in two drops, and the average calculated. In making the differential count, at least 500 leukocytes are counted.

Our records go to show that in nearly all cases of manic depressive insanity and acute mania there is a leukocytosis, while the erythrocytes (in size, appearance and number) and the hæmoglobin may be normal, or practically so. Estimation of the colour index has been systematically made, but so far has offered no information.

Cabot, in his "Clinical Examination of the Blood," defines the meaning of a leukocytosis as "an increase in the number of leukocytes in the peripheral blood over the number normal in the individual case, this increase never involving a diminution in the polymorphonuclear varieties, but generally a marked, absolute and relative gain over the number previously present."

Most observers say that a leukocytosis is not always an increase in the total number of leukocytes in the body, but is often the result of chemotaxis or thermotaxis, the cells being attracted to the periphery and out of the internal organs. Many investigators have shown that there are two types of leukocytoses—the first appearing and disappearing suddenly and only of short duration; the second, when a leukocytosis is prolonged, as in suppuration, etc. In our cases of manic depressive insanity and acute mania, the leukocytosis is shown during the excited period, but, on the disappearance of this phenomenon, the leukocytes gradually diminish to normal. This period may be from a few days to a few weeks, and the length of time before admission it is often impossible to ascertain, but is, in all probability, at least several days. This would seem to indicate that leukocytes are formed and turned into the circulatory blood faster than under normal conditions; consequently, the total number of leukocytes in the body is increased over normal.

If it were a leukocytosis of sudden appearance and subsidence, the increase of leukocytes in the peripheral blood would correspond to a decrease in the number normally present in the pulmonary capillaries and elsewhere, but the total number of leukocytes in the body would remain the same. Cabot suggests that possibly the leukocytosis of acute delirium and acute mania come under the heading of "toxic leukocytosis." Fisher (*Amer. Jour. Insan.*, 1903) comes to the conclusion that in cases of maniacal insanity "a leukocytosis is an almost constant accompaniment," and she believes that it is a result of "psychomotor activity."

In the case of a parietic, a count made during a heavy seizure showed 5,327,000 erythrocytes and 18,720 leukocytes; hæmoglobin, 95 per cent.; colour index, 0.891; while this patient's normal count, on admission, was erythrocytes, 5,220,000; leukocytes, 8,000; hæmoglobin, 95 per cent.; colour index, 0.909.

Striking an average from these examinations, we are hardly justified in concluding that any of the cases suffered with anæmia due to the psychosis. On the other hand, the leukocytosis probably may be due to exhaustion induced by maniacal excitement, loss of sleep, impaired nutrition, etc. (*see notes on Urinalysis*). Also, the excitement accompanying acute mania and manic depressive insanity does not cause a decrease in the number of erythrocytes, while, on the other hand, the decrease in number of leukocytes to normal (for the individual case) and an increase in body weight are generally incidental with mental improvement.

A Case of Addison's Disease.

2261. Female, æt. 30; admitted 26th September, 1908.

September 27th, 1909—Reds, 3,320,000; leukocytes, 14,600; hæmoglobin, 45 per cent.; colour index, 0.677.

October 14th—Reds, 1,293,280; leukocytes, 27,440; hæmoglobin, 35 per cent.

October 15th—Differential count: Mononuclears, large, 25.04 per cent.; small, 23.6 per cent.; polymorphonuclears, 45.44 per cent.; eosinophiles, 4.14 per cent.; mast cells, 0.95 per cent.; a few nucleated reds.

October 26th—Reds, 1,820,000 ; leukocytes, 18,600 ; hæmoglobin, 50 per cent. Differential count : Mononuclears, large, 16.359 per cent. ; small, 24.271 per cent. ; polymorphonuclears, 54.147 per cent. ; eosinophiles, 4.147 per cent. ; mast cells, 0.921 per cent. A few nucleated reds.

November 3rd—Reds, 2,000,000 ; leukocytes, 17,300 ; hæmoglobin, 60 per cent. Differential count : Mononuclears, large, 17.2 per cent. ; small, 23.52 per cent. ; polymorphonuclears, 54.28 per cent. ; eosinophiles, 4.1 per cent. ; mast cells, 0.9 per cent.

November 9th—Reds, 3,736,800 ; leukocytes, 9,680 ; hæmoglobin, 75 per cent. Differential count : Mononuclears, large, 17.72 per cent. ; small, 24.62 per cent. ; polymorphonuclears, 52.6 per cent. ; eosinophiles, 4.16 per cent. ; mast cells, 0.9 per cent.

November 17th—Reds, 4,100,000 ; leukocytes, 8,800 ; hæmoglobin, 80 per cent. ; colour index, 0.975. Differential count : Mononuclears, large, 16.556 per cent. ; small, 23.6 per cent. ; polymorphonuclears, 54.8 per cent. ; eosinophiles, 4.124 per cent. ; mast cells, 0.92 per cent.

December 6th—Reds, 4,320,000 ; leukocytes, 7,400 ; hæmoglobin, 80 per cent. Differential count : Mononuclears, large, 16.62 per cent. ; small, 23.87 per cent. ; polymorphonuclears, 54.6 per cent. ; eosinophiles, 4 per cent. ; mast cells, 0.91 per cent.

The number and nature of examinations of the blood may be seen in the following table :—

Enumerations :

Reds	240
Leukocytes	240
Differential	135

Widal's Serum Reactions :

To B. typhi abdominalis	29
" B. paratyphosus	6
" B. Shiga	3
" B. Flexner	3
" B. tuberculosis	6
" Micrococcus melitensis	5

Estimation of :

Hæmoglobin	215
Colour index	210
Blood coagulation time	4
Specific gravity	6
Alkalinity	3

Examination for :

Bacillus tuberculosis	2
Lead	1

SPUTUM.

The following table shows the number and nature of the examinations made :—

	B. Tuberculosis.	Diplococcus Pneumoniæ.
Slides examined	130	32
Number of cases	18	7
Found in	5	5
Not found in	13	2

Considerable difficulty has been experienced in collecting specimens of sputum for examination from suspected tubercular patients. Some apparently never expectorated, while

others refused to expectorate in any given receptacle. In consequence, two patients died suffering with *dementia præcox* and *tubercle of the lungs*, but the *tubercle bacillus* was not found until after death.

With one case of *tubercle of the lungs* that ended fatally, the *tubercle bacillus* could only be found in the sputum at intervals, while with another case that also ended fatally, the *bacillus* was not found at all during life, although pulmonary hæmorrhage had occurred twice; also in another case with fatal termination, the organism was not found at all during life. In all three of these cases there was little or no apparent expectoration, and it was assumed that the sputum was swallowed, especially as diarrhœa was present in each case (there was no ulceration of the intestines post mortem). To this end, in one case, a frequent examination of stools and urine was made, in order to isolate the organism if this was so; but, if the sputum was swallowed, the bacilli were destroyed or arrested in the alimentary canal, as on no occasion could it be demonstrated in either stool or urine. The agglutination test (Arloing and Courmont) was also tried, but gave negative results. In one specimen (probably saliva from the mouth only) the *smegma bacillus* was nearly mistaken for the *tubercle bacillus*, and only differentiation with alcohol showed the mistake. It is, perhaps, always advisable to wash the stained and decolourised smear with alcohol when staining for the *tubercle organism*, as by so doing the *smegma bacillus* cannot be mistaken for the *tubercle germ*.

FOOD SUPPLIES.

The milk supplied to the hospital has been analysed at least weekly, and other foods as required. The following tables will show the nature of these examinations:—

	Chemical Analyses.	Bacteriological Examinations.
Milk	44	27
Butter	3	..
Tea	4	..
Coffee	3	..
Flour	3	..
Fish . . . . .	..	1
Human milk	1	1

The milk has been of a fairly uniform consistence, the analysis shown below being an average of the weekly analyses for the year:—

Specific gravity @ 15.5° C.	1.032	Total solids	13.000 %
Solids not fat	9.750 %	Fat	3.250 %
Cream	5.750 %	Ash	0.660 %
Water	87.000 %		

On no occasion has any pathogenic organism been found in the milk; still organisms, such as *staphylococci* and *streptococci*, that may acquire pathogenic properties under certain conditions, have been found.

Dairy regulations and management in this country are extremely primitive, and under the existing circumstances the milk supply is as good as can be expected, though far from perfect. This applies to the bacteriological examinations, the chemical analyses having always shown the milk to be whole, unadulterated and well up to the recognised standards.

The butter, flour, tea and coffee were found to be of good quality. The sample of fish referred to in the table was a piece of frozen halibut, in which the presence of the *Proteus vulgaris* indicated incipient putrefaction.

THE WATER SUPPLY.

Samples of water, as supplied to the hospital, have been submitted to chemical analysis on 41 and bacteriological examination on 69 occasions. The following is an average of the results of analyses for the year:—

Physical Examination.

- | | |
|----------------------|-------------------------------------|
| 1. Turbidity—Nil. | 4. Taste—Palatable. |
| 2. Reaction—Neutral. | 5. Sediment—Slight. |
| 3. Smell—Nil. | 6. Colour at 2 feet—Brownish-green. |

Chemical Examination: Parts per 100,000.

- | | |
|--|--|
| 1. Ammonia, free 0.001 | 8. Hardness, permanent 0.070 |
| 2. Ammonia, albuminoid 0.001 | 9. Oxygen absorbed 4 hrs. @ 37° C. 0.150 |
| 3. Nitrates—Nil, or only faint traces. | 10. Oxygen absorbed 3 m. @ 37° C. 0.010 |
| 4. Nitrates—Nil. | 11. Solids, total 2.000 |
| 5. Chlorine 3.000 | 12. Solids, fixed 0.600 |
| 6. Hardness, total 0.100 | 13. Solids, volatile 1.400 |
| 7. Hardness, temporary 0.030 | 14. Poisonous metals—Nil. |

Microscopical Examination of Sediment.

Vegetable débris and occasionally a few ulvæ cells.

Bacteriological Examination.

Fifty bacteria per c. c. These were non-pathogenic, ordinary aquatic bacteria, therefore of no significance from a hygienic point of view.

The softness, absence of nitrites, low ammonia and oxygen absorbed figures, together with the appearance, aëration and taste, show this to be an ideal water, especially adapted for all domestic uses, and this Institution is to be congratulated on having such an excellent source of supply. The absence of all bacteria that would indicate pollution shows it to be absolutely safe for drinking purposes without any previous preparation.

In accordance with your verbal instructions of the 23rd January, I made an inspection of Coquitlam Lake and vicinity, with a view to ascertaining whether the raising of the lake level 60 feet by the dam proposed to be built by the Vancouver Power Company, Ltd., would be deleterious to the water, as regards the inmates of and supply to this hospital, the lake being the source of water supply to this Institution, and also will be to the new hospital at Coquitlam in the future. The report on same was rendered to the Provincial Government on 26th January.

MISCELLANEOUS.

The tetanus bacillus was isolated from the garden soil by Shiga's method.

The thermal death-point has been determined with considerable precision for a few of the common micro-organisms. These fatal temperatures are lower than is popularly supposed. The thermal death-point (10 minutes exposure) for the cholera spirillum is 58° to 60° C.; for the anthrax bacillus, vegetative form, 60° C., spore 100° C.; for the typhoid bacillus, 58° to 60° C.; and for the tubercle bacillus, 65° to 70° C. Under certain conditions, the thermal death-point may be raised. Tubercle bacilli in suspension in milk are destroyed at 60° C. in 15 to 20 minutes, but the pellicle that forms on the surface of milk during exposure at 60° C. may contain living bacilli after one hour. The thermal death-point of those bacteria that are at all likely to be present in polluted water is low (57° to 69° C.), and since these micro-organisms do not form spores, simply bringing the water to the boiling point suffices to insure its safety for drinking purposes. Most of the ordinary aquatic bacteria are powerless to grow when introduced into the animal body, and seem entirely unadapted to a parasitic mode of life.

A bacteriological, pathological and chemical laboratory was an essential requirement of which this hospital was badly in need, not only to bring it up to a modern standard, but first and foremost, the bacteriological and pathological work conducted in a modern laboratory is

of the utmost importance and assistance to physicians from a diagnostic standpoint, while the chemical analyses, immediately detecting any harmful adulteration or pollution of foods and water, tend to protect the health of the patients.

A laboratory also is the only place where research work can be successfully carried out, and it is only from unremitting investigations and experiments, and the statistics compiled therefrom, on the pathological changes that occur in the insane, that those unfortunates who suffer with insanity can ever hope to derive any benefit. It is impossible for too much work to be done along these lines; consequently, it behoves every State and Province to do all in their power, and to give every assistance towards this laudable end.

While no needless apparatus has been obtained in the equipment of this laboratory, still we have an up-to-date chemical, bacteriological and pathological laboratory, where almost any examination can be conducted, without, perhaps, its equal on the Coast.

This year considerable time has been devoted to experiments on animals, and it is intended, where time permits, to assiduously carry on with this line of work. To this end, an urgent need of this department is current technical literature.

In conclusion, I wish to thank you for your hearty co-operation, and also to express my thanks to Dr. McKay and the local physicians for their valuable assistance and the material they have supplied me with, since this laboratory opened.

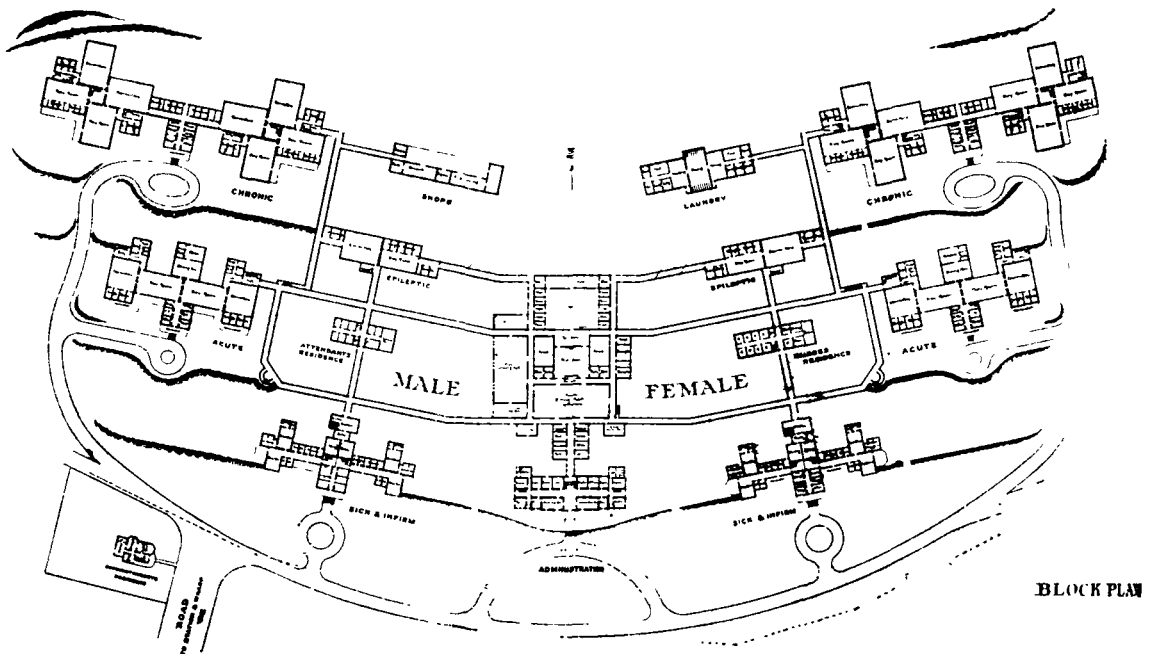
I have the honour to be,

Sir,

Your obedient servant,

F. P. HUGHES.

PLANS FOR THE NEW HOSPITAL.



BLOCK PLAN



Male Patients' Dining-room.

STATISTICAL TABLES.

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TABLE No. 1.

Showing the operations of the Hospital for the year 1909, in summary form.

Movement of population.	Male.	Female.	Total.	Male.	Female.	Total.
Remaining in residence at New Westminster, January 1st, 1909	375	132	507			
Remaining in residence at Vernon Branch, Jan- uary 1st, 1909	60		60			
Discharged on probation and still out	8	7	15			
Escaped but not discharged	2		2			
Total under treatment				445	139	584
Admitted during the year :—						
By ordinary forms	156	65	221			
By urgent forms	2		2			
Order of Court	1		1			
From Yukon Territory	6	2	8	165	67	232
Total under treatment during the year				610	206	816
Discharged during the year :—						
As not insane	1		1			
As recovered	61	11	72			
As improved	34	12	46			
As unimproved	26	5	31			
Total	122	28	150			
Discharged on probation and still out, Dec. 31st, '09	6	12	18			
Escaped but not yet discharged	9		9			
Died	31	9	40			
In residence at Vernon Branch Asylum	64		64	232	49	281
Remaining in residence January 1st, 1910				379	157	536
Total number of cases admitted since opening				1,935	606	2,541
" " discharged "	1,006	342	1,348			
" " died "	471	95	566	1,477	437	1,914
Remaining under treatment January 1st, 1910				458	169	627

Daily average population during the year	528
Maximum number present any one day, March 31st	529
Minimum " " January 31st	509
Percentage of discharges on admissions (deaths excluded)	64.6
" recoveries "	31
" deaths on whole number under treatment	6.4

TABLE No. 2.

Showing in summary form the operations of the Hospital since its inception.

Year.	Admissions.	Discharges.		Deaths.	Number resident at the close of each year.	Increase.	Decrease.	Whole number treated.	Percentage of recoveries to admissions.	Percentage of discharges to admissions (deaths excluded).	Percentage of deaths to whole number under treatment.
		Recovered.	Not recovered.								
1872.....	18	1	0	1	16	0	0	18	5.55	5.55	5.55
1873.....	15	10	2	5	14	.....	2	31	66.66	80.00	16.12
1874.....	12	4	.....	3	19	5	.....	26	33.33	33.33	11.53
1875.....	29	3	3	10	32	13	.....	48	10.34	26.89	20.83
1876.....	22	11	3	5	35	3	.....	54	50.00	63.63	9.35
1877.....	14	4	4	3	38	3	.....	49	28.57	78.57	6.12
1878.....	16	7	3	8	36	.....	2	54	43.75	62.50	16.16
1879.....	18	4	1	8	41	5	.....	54	22.22	27.77	14.81
1880.....	17	5	0	5	48	7	.....	58	29.41	29.41	8.62
1881.....	13	5	3	5	48	.....	.....	61	38.46	61.54	8.19
1882.....	7	3	1	2	49	1	.....	55	42.85	57.14	3.63
1883.....	8	4	1	3	49	.....	.....	57	50.00	62.50	5.26
1884.....	10	2	4	2	51	2	.....	59	20.00	60.00	3.33
1885.....	20	5	0	5	61	10	.....	71	25.00	25.00	6.94
1886.....	27	10	6	6	66	5	.....	88	37.03	59.25	6.81
1887.....	36	15	5	5	77	11	.....	102	41.66	55.55	4.80
1888.....	26	12	6	3	82	5	.....	103	46.15	69.23	2.87
1889.....	41	14	5	4	100	18	.....	123	34.15	46.34	3.25
1890.....	52	17	6	12	117	17	.....	152	32.69	44.23	7.64
1891.....	49	19	4	20	123	6	.....	166	38.77	46.94	11.69
1892.....	52	17	10	13	135	12	.....	175	32.69	51.92	6.95
1893.....	44	14	18	14	133	.....	2	179	31.81	72.72	7.60
1894.....	80	13	19	19	162	29	.....	213	16.25	40.00	8.92
1895.....	62	29	11	20	164	2	.....	224	46.77	64.51	8.92
1896.....	64	23	25	9	171	7	.....	228	35.93	75.00	3.94
1897.....	74	20	8	14	203	32	.....	246	27.03	37.83	5.69
1898.....	81	27	13	19	221	18	.....	285	33.33	49.38	6.66
1899.....	101	31	32	21	234	13	.....	327	30.69	62.37	6.42
1900.....	113	38	27	29	258	24	.....	356	33.63	57.52	8.14
1901.....	115	40	20	25	284	26	.....	377	34.78	52.17	6.63
1902.....	121	30	31	25	311	27	.....	413	24.79	50.41	6.06
1903.....	139	38	37	26	349	38	.....	466	27.34	53.96	5.57
1904.....	115	46	26	26	321	.....	28	480	40.00	62.61	5.42
1905.....	123	43	33	27	348	27	.....	505	33.33	61.78	5.34
1906.....	150	36*	43	28	388	43	.....	552	23.03	52.06	5.04
1907.....	221	48	43	39	461	73	.....	666	21.30	41.20	5.08
1908.....	230	68*	56	57	507	46	.....	765	28.30	53.90	7.44
1909.....	232	73†	77	40	536	29	.....	816	31.00	64.60	6.40

*Three not insane.

†One not insane.

TABLE NO. 3.

Showing the number of admissions, discharges and deaths during 1909.

Months.	ADMISSIONS.			DISCHARGES.			DEATHS.		
	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.
January	7	3	10	6	.....	6	2	.....	2
February	13	2	15	1	.....	1	4	.....	4
March	20	9	29	1	.....	1	5	1	6
April	17	4	21	8	5	13	8	1	9
May	10	6	16	1	.....	1	1	.....	1
June	14	3	17	4	.....	4	2	.....	2
July	14	2	16	8	1	9	2	1	3
August	12	11	23	19	12	31	.....	.....	.....
September	16	9	25	1	.....	1	3	.....	3
October	17	4	21	46	4	50	2	2	4
November	11	7	18	5	.....	5	1	1	2
December	14	7	21	22	6	28	1	3	4
Total	165	67	232	122	28	150	31	9	40

TABLE NO. 4.

Showing the civil state of patients admitted during 1909.

Civil state.	Male.	Female.	Total.
Single	98	17	115
Married	45	49	94
Widowed	3	1	4
Unknown	19	.....	19
Divorced .....	.....	.....	.....
Total	165	67	232

TABLE NO. 5.

Showing the religious denominations of those admitted during 1909.

Religious denominations.	Male.	Female.	Total.
Anglicans	2	2	4
Baptists	3	6	9
Buddhists	5	1	6
Confucian	2	.....	2
Episcopalian	10	4	14
Greek Church	2	1	3
Heathen	7	.....	7
Jews	1	2	3
Lutheran	12	3	15
Methodists	15	8	23
Non-sectarians .....	.....	1	1
Presbyterians	13	9	22
Protestants	41	14	55
Roman Catholics	30	12	42
Salvation Army	1	.....	1
Sintoists	2	.....	2
Unitarians	1	.....	1
Unknown	15	3	18
Wesleyans	1	.....	1
None	2	1	3
Total	165	67	232

TABLE No. 6.

Showing the degree of education of those admitted during 1909.

Degree of education.	Male.	Female.	Total.
Superior	8	9	17
Common school	105	50	155
Could read and write	25	7	32
None	18	1	19
Unknown	9	.....	9
Total	165	67	232

TABLE No. 7.

Showing the nationality of those admitted during 1909.

Nationality.	Male.	Female.	Total.
Australia	1	.....	1
Austria	1	1	2
China	14	1	15
England	38	18	56
Finland	6	1	7
France	2	.....	2
Germany	4	1	5
Greece	2	.....	2
Iceland .....	.....	1	1
Ireland	12	2	14
Italy	2	.....	2
Japan	7	.....	7
New Zealand	1	.....	1
Norway	4	1	5
Poland	2	.....	2
Russia	1	1	2
Roumania	1	.....	1
Scotland	12	4	16
Sweden	4	2	6
United States	13	13	26
Wales	2	.....	2
Canada :—			
British Columbia	4	6	10
Manitoba	3	.....	3
New Brunswick	3	.....	3
Newfoundland	1	.....	1
Nova Scotia	4	1	5
Ontario	13	8	21
Prince Edward Island	3	.....	3
Quebec	5	6	11
Total	165	67	232

TABLE No. 8
Showing what districts contributed patients during 1909

Place of residence at time of committal	Male	Female	Total
Albion		1	1
Ashcroft	2		2
Armstrong		1	1
Bowen Island	1		1
Burnaby	1		1
Chilliwack	4	3	7
Coquitlam	1		1
Cumberland	1	1	2
Cascade	1		1
Crow's Nest		1	1
Clinton	1		1
Cedar District	1		1
Dewdney	2		2
Esquimalt	1		1
Elgin	1		1
Elko	1		1
Extension Mines	1		1
Ferne	3	1	4
Field	2		2
Golden	2	1	3
Grand Forks	2		2
Granite Island	1		1
Greenwood	1	1	2
Gerrard	1		1
Hornby Island	1		1
Hope	1		1
Kimsquit	1		1
Kaslo	1		1
Kamloops	3	1	4
Kelowna	1		1
Ladysmith		1	1
Ladner		2	2
Langlev	1		1
Lulu Island	1		1
Moyie	1		1
Maple Bay	1	1	2
Maple Ridge	1		1
Midway	1	1	2
Mission Valley		1	1
Malcolm Island	1		1
Michel	1		1
Nahun	1		1
Nelson	4		4
Nicomien		1	1
New Westminster	10	4	14
North Vancouver	4		4
Nanaimo	2		2
Ooh Bay	1		1
Peachland		1	1
Port Essington	1		1
Port Moody	2		2
Penticton		1	1
Parsons Bridge		1	1
Paxton Valley		1	1
Powell Lake	1		1
Prince Rupert	5	1	6
Quatsino	1		1
Rossland	1	2	3
Revelstoke	3		3
South Vancouver	2		2
Steveston	2		2
Shoal Bay	1		1
<i>Carried forward</i>	86	29	115

TABLE No. 8.—*Concluded.*

Place of residence at time of committal.	Male.	Female.	Total.
<i>Brought forward</i>	86	29	115
Sumas	1		1
Squamish River		1	1
Salmon Arm		1	1
Salmo	1		1
Spuzzum	1		1
Tappen Siding	1		1
Trail	1		1
Victoria	23	10	33
Van Anda	1		1
Vancouver	36	23	59
Vernon	5		5
Wardner	1		1
Alberta:—			
Wetaskiwin		1	1
Cariboo:—			
40-Mile		1	1
150-Mile	1		1
United States:—			
Seattle	1		1
Total	159	66	225

TABLE No. 9.

Showing the occupation of those admitted during 1909.

Occupation.	Male.	Female.	Total.
Agent	1		1
Barber	1		1
Book-keeper	1		1
Book-binder	1		1
Blacksmith	1		1
Builder (retired)	1		1
Carpenter	2		2
Carriage-builder	1		1
Canneryman	1		1
Clerk	3		3
Cook	3	1	4
Contractor	2		2
Domestic		8	8
Engraver	1		1
Engineer	2		2
Farmer	17		17
" (retired)	1		1
Farm-hand	1		1
Fireman	3		3
Fisherman	2		2
Gentleman	1		1
Housewife		44	44
Labourer	56		56
Linotype operator		1	1
Logger	5		5
Miller	1		1
Millwright	1		1
Miner	14		14
Machinist	1		1
<i>Carried forward</i>	124	54	178

TABLE NO. 9.—*Concluded.*

Occupation.	Male.	Female.	Total.
<i>Brought forward</i>	124	54	178
Motorman	1	.....	1
Newspaper proprietor	1	.....	1
Nurse	1	.....	1
None	1	6	9
Nightwatchman	3	.....	1
Pipe-maker	1	.....	1
Real estate agent .....	.....	.....	2
Reporter	1	.....	1
Stevadore .....	.....	.....	1
Solicitor-at-law	2	.....	1
Sailor	1	.....	3
Soldier .....	.....	.....	1
School teacher	2	1	1
" master	1	.....	1
Stenographer	1	1	1
Smelterman	2	.....	2
Student	1	.....	1
Sporting woman	2	1	1
Shoemaker	1	.....	2
Store clerk	1	.....	1
Salesman	9	.....	1
Teamster	1	.....	2
Tailor	3	.....	1
Vagrant	1	.....	2
Wood-chopper	1	.....	1
Weighman	2	.....	1
Unknown	1	4	13
Total	165	67	232

TABLE NO. 10.

Showing the ages of those admitted during 1909.

Age.	Male.	Female.	Total.
From 15 to 20 years	1	1	2
" 20 to 25	21	13	34
" 25 to 30	28	4	32
" 30 to 35	28	9	37
" 35 to 40	19	10	29
" 40 to 45	23	11	34
" 45 to 50	16	9	25
" 50 to 55	11	5	16
" 55 to 60	5	3	8
" 60 to 65	4	2	6
" 65 to 70	3	.....	3
" 70 to 75	3	.....	3
" 75 to 80	2	.....	2
" 80 to 85	1	.....	1
Total	165	67	232

TABLE No. 11.

Showing the number of attacks in those admitted during 1909.

Number of attack.	Male.	Female.	Total.
First	76	46	122
Second	33	9	42
Third	7	2	9
Fourth	4	1	5
Unknown	46	8	54
Congenital .....	.....	1	1
Not insane	1	.....	1
Total	165	67	232

TABLE No. 12.

Showing the alleged duration of attack prior to admission.

Duration of attack.	Male.	Female.	Total.
Under 1 week	36	14	50
From 1 week to 1 month	47	16	63
" 1 to 3 months	28	9	37
" 3 to 6 "	20	4	24
" 6 to 12 "	2	3	5
" 1 to 2 years	9	8	17
" 2 to 5 "	4	3	7
" 5 to 10 "	1	3	4
" 10 to 15 "	2	2	4
" 15 to 20 "	1	2	3
Unknown	15	3	18
Total	165	67	232

TABLE No. 13.

Showing statistics of heredity in those admitted during 1909.

Heredity.	Male.	Female.	Total.
Paternal branch	1	1	2
Maternal branch	4	2	6
Paternal and maternal branches .....	.....	2	2
Said not to be heredity	54	29	83
History unascertained	106	33	139
Total	165	67	232



A Day Room for Male Patients.

TABLE No. 14.

Showing the alleged existing causes of the attack of insanity.

Alleged cause.	Male.	Female.	Total.
Business worry	1		1
Christian Science study		1	1
Childbirth		2	2
Concussion from blasting	1		1
Domestic worry	1	7	8
Death of husband		1	1
Epilepsy		1	1
Exposure	1		1
Fall	3	1	4
Gunpowder explosion	1		1
Heredity	3	3	6
Injury to head	5	2	7
Intemperance (alcoholic)	13		13
Love affair		1	1
Loss of property	1		1
Masturbation	4		4
Mental worry	8		8
Money trouble	2		2
Nervousness	1		1
Overstudy		1	1
Overwork	1		1
Pregnancy		2	2
Religion	4	1	5
Senility	2		2
Sunstroke	2		2
Seclusion	1	1	2
Spiritualism	1	1	2
Softening of brain		1	1
Son's death	1		1
Unnatural life	1		1
Weakness		1	1
Whooping cough		1	1
Women	1		1
Poor health	1	2	3
Loneliness		1	1
La Grippe		1	1
Unstated but suspected heredity in majority	105	35	140
Total	165	67	232

TABLE No. 15.

Showing the state of bodily health on admission during 1909.

Bodily condition.	Male.	Female.	Total.
In average bodily health	121	37	158
In reduced health	32	18	50
In greatly reduced condition	12	12	24
Total	165	67	232

TABLE NO. 16.

Showing the form of mental disorder in those admitted during 1909.

Form of disorder.	Male.	Female.	Total.
Acute mania	1	1	2
Melancholia	8	10	18
Mania, depressive condition	32	25	57
Dementia præcox	56	10	66
Dementia organic			
General paralysis	22	3	25
Epileptic insanity	1	2	3
Toxic insanity	9	2	11
Senile dementia	7	1	8
Terminal dementia	8	3	11
Imbecility and idiocy	1	2	3
Paranoia	19	8	27
Not insane	1		1
Total	165	67	232

TABLE NO. 17.

Showing the number allowed out on probation, and results during 1909.

Results.	Male.	Female.	Total.
Discharged recovered	28	13	41
" improved	17	6	23
" unimproved	5	1	6
Returned to hospital	10	2	12
Still out at close of year	6	12	18
Total	66	34	100

TABLE NO. 18.

Showing alleged duration of insanity prior to admission in those discharged during 1909.

Duration of insanity.	Male.	Female.	Total.
Less than 1 week	28	7	35
" 1 month	21	8	29
From 1 to 2 months	9	4	13
" 2 " 3 "	3	2	5
" 3 " 6 "	9	2	11
" 6 " 12 "	5		5
" 1 " 2 years	6		6
" 2 " 3 "			
Over 3 "	4	1	5
Not insane	1		1
Unknown	36	4	40
Total	122	28	150

TABLE No. 19.

Showing length of residence of those remaining under treatment in 1910, and those who were discharged during the year 1909.

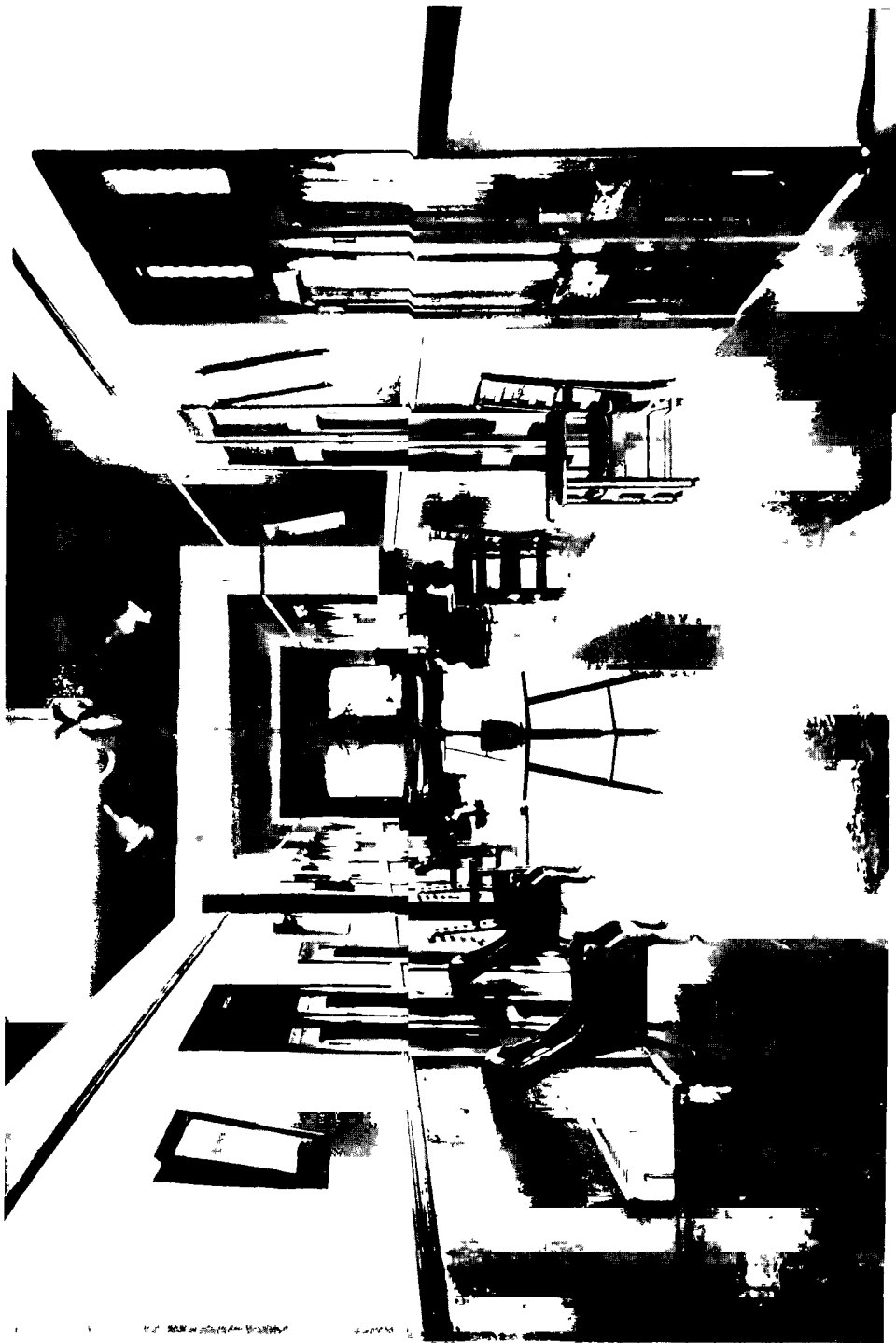
Length of residence.	Of those under treatment January 1st, 1910.	Of those discharged & recovered in 1909.	Of those discharged improved during 1909.	Of those discharged unimproved during 1909.	Of those discharged not insane during 1909.
Less than 1 month	17	6	3		1
From 1 to 2 months	23	9	8	2	
" 2 " 3 "	15	5	5	2	
" 3 " 4 "	17	8	3		
" 4 " 5 "	10	8	4		
" 5 " 6 "	7	14	5	2	
" 6 " 9 "	28	8	7		
" 9 " 12 "	22	10	5	2	
" 1 " 2 years	82	1	2	5	
" 2 " 3 "	70	1	1	6	
" 3 " 4 "	35	1	1	2	
" 4 " 5 "	26		1	3	
" 5 " 6 "	28			3	
" 6 " 7 "	28	1		1	
" 7 " 8 "	16			1	
" 8 " 9 "	13				
" 9 " 10 "	16		1		
" 10 " 15 "	34			1	
" 15 " 20 "	26			1	
" 20 " 25 "	12				
Over 25 years	11				
Total	536	72	46	31	1



ADMINISTRATION BUILDING
FRONT ELEVATION

TABLE NO. 20.
Record of deaths for the year 1909.

Register No.	Initials.	Sex.	Age.	Time in hospital.			Certified cause.
				Years.	Months.	Days.	
1,964	R. M.	M.	23	.....	6	14	Pneumonia.
1,732	H. O.	M.	43	2	10	24	General paralysis.
2,277	J. E.	M.	44	.....	3	11	General paralysis.
2,287	J. C.	M.	48	.....	3	4	Pneumonia.
1,793	G.	M.	39	2	7	4	Pneumonia.
1,733	A. C.	M.	43	2	11	20	Intestinal ulceration.
1,587	T. R.	M.	58	4	2	10	Myelitis.
2,306	G. McK. M.	M.	17	.....	3	3	Epileptic exhaustion.
1,371	J. T.	M.	32	5	11	18	Pneumonia.
2,352	E. M. L.	F.	23	.....	.....	8	Maniacal exhaustion.
2,148	A. S. E.	M.	39	.....	11	18	Enteritis.
2,085	E. P. H.	M.	35	1	2	12	Tuberculosis of lungs.
2,240	D. C.	M.	23	.....	7	11	Tuberculosis of lungs.
2,350	A. C. R.	F.	44	.....	.....	22	Maniacal exhaustion.
1,121	W. F.	M.	45	7	11	18	Peritonitis.
2,373	S. K.	M.	33	.....	.....	2	Cerebral hæmorrhage.
2,194	W. K.	M.	47	.....	10	2	General paralysis.
1,763	L. R.	M.	79	1	11	12	Senility.
2,251	E. W.	M.	45	.....	7	16	General paralysis.
1,693	J. C.	M.	60	3	5	17	Carcinoma of stomach.
1,610	T. W.	M.	53	4	1	13	General debility.
2,331	A. J.	M.	53	.....	2	20	Tubercular peritonitis.
241	J. H.	M.	55	22	8	5	Pulmonary hæmorrhage.
2,271	C. B.	M.	39	.....	8	3	Shock.
1,689	J. B.	M.	24	3	6	15	Tuberculosis of lungs.
1,526	A. D. W.	F.	37	5	1	13	Erysipelas.
1,667	A. M.	M.	49	4	10	20	Tuberculosis of lungs.
1,676	M. K.	M.	63	3	11	6	Tuberculosis of lungs.
2,243	J. H.	M.	42	1	.....	18	Accidental.
2,444	E. N.	M.	70	.....	1	9	Senility.
1,392	M. A. S.	F.	39	6	4	22	General debility.
1,976	M. C.	M.	30	2	2	28	Typhoid fever.
1,348	J. D.	F.	43	6	9	4	Phthisis.
2,406	S. O.	M.	30	.....	4	8	General paralysis.
764	S. I.	F.	71	12	3	29	Senile debility.
2,491	J. S. J.	M.	45	.....	.....	21	General paralysis.
2,509	M. H.	F.	47	.....	.....	12	Maniacal exhaustion.
2,453	L. D. G.	F.	54	.....	5	13	General paralysis.
2,173	P. L.	M.	64	1	7	2	General paralysis.
2,458	A. S.	F.	36	.....	3	23	General paralysis.



Male Ward.

TABLE No. 21.

Work done by Patients for the year 1909.	
Carpenter	905 days.
Farmer	8,835 "
Gardener	2,184 "
Engineer	1,499 "
Kitchen	2,570 "
Laundry	4,179 "
Painter	1,391 "
Plasterer	569 "
Shoemaker	381 "
Tailor	511 "
Ward work	28,217 "
Porter	744 "
Baker	1,079 "
Plumber	183 "
Laboratory	133 "
Dining-room	4,641 "
Scullery	1,341 "
<i>Colony Farm.</i>	
Carpenter	302 "
Farmer	1,953 "
Dining-room	707 "
Engineer	381 "
Kitchen	577 "
Stable	364 "
Painter	14 "
General work	1,168 "
Slashing and cutting wood	5,945 "
Mason	257 "

TABLE No. 22.

Articles made by Female Patients.

Aprons	161	Chemises	135
Blouses	6	Drawers (pairs)	42
Dresses, gingham	46	Doilies	28
" serge	9	Dusters	216
Handkerchiefs	186	Mats, rag	8
Napkins, table	12	Neckties	304
Pillow slips	295	Sheets	480
Skirts	17	Towels, bath	464
Tablecloths	44	" roller	167
Petticoats	5	" tea	150
Cushions	12	" tray	48
Window curtains (pairs)	19	" huckaback	39
Sash	18	Clothes bags	6
Sofa pillows	2		

Articles made for Nurses.

Aprons	98	Dresses	27
Caps	58		

Repairs for Nurses.

Aprons	261	Dresses	235
Caps	25		

Mending done for Female Patients.

Aprons	329	Blankets	278
Blouses	284	Chemises	423
Drawers (pairs)	312	Dresses, gingham	421
Hose (pairs)	2,889	" serge	309
Pillow slips	198	" night	320
Sheets	290	Skirts	551
Spreads, bed	227	Towels, bath	151
Tablecloths	215	" roller	81
Ticks, bed	134	Vests, under	474

Mending done for Male Patients.

Blankets	332	Coats	301
Drawers (pairs)	1,498	Overalls	198
Pillow slips	292	Pants (pairs)	1,142
Sheets	319	Tablecloths	266
Towels, bath	170	Shirts, duck	1,454
" roller	102	" under	1,566
Spreads, bed	239	Socks (pairs)	4,639
Ticks, bed	137	Vests	214
Jumpers	66		

New work done in Tailor's Shop during 1909.

Uniforms, suits	35	Patients' clothes, coats	142
" pants	51	" " vests	120
Bed ticks	67	" " pants	231
Blankets, canvas	15	Pillow ticks	6
Shirts, top	130	Combinations	15
" under	59	Smocks	8
Drawers (pairs)	45	Overalls	8
		Total value of finished work	\$3,871 64
		Repairs, value	22 79
		Total	\$3,894 43

Work done by Shoemaker during 1909.

<i>New work.</i>		<i>Repairs.</i>	
New shoes, men's	46 pairs—\$317 00	Men's shoes	427 pairs—\$426 00
" slippers, "	62 " 155 50	" slippers	134 " 108 80
" shoes, women's		Women's shoes	46 " 61 00
" slippers, "	2 pairs 5 00	" slippers	7 " 4 25
Miscellaneous work			
Total			\$30 40
			Total
			\$1,107 95

Preserves put up for year 1909.

Red currants	60 quarts.	Cherries	40 quarts.
Black "	65 "	Rhubarb	80 "
" berries	48 "	Raspberries	48 "
Peaches	35 "	Pears	55 "
Plums	95 "	Crab apples	80 "

Pickles.

Tomato	225 quarts.	Cucumber	10 quarts.
Crab apple	20 "		

Jelly.

Apple	20 quarts.	Black currant	35 quarts.
Red currant	40 "		

VICTORIA, B. C.

Printed by RICHARD WOLFENDEN, I.S.O., V.D., Printer to the King's Most Excellent Majesty.

1910