These Passed The Exams.

Result of the Examination of Candidates for Teachers' Certificates Made Public.

Long List of Successful Ones With the Number of Marks Obtained.

The result of the examination of candidates for teachers' certificates was made public yesterday by the superintendent of education. The examinations were held last month simultaneously in Victoria, Vancouver, Nelson and Kamloops, the examiners being Superintendent Robinson, Edward B. Paul, M. A., and J. H. Kerr, B. A. The successful candidates are:

FIRST CLASS—GRADE A CERTIFICATE.

Hunt, Bertha M., B.A., University of Toronto, 1899.
Wark, Joseph, B.A., University of Manitoba, 1899.
Hatt, Myra, B.A., University of New Brunswick, 1899.
Brandon, William M., B.A., University of Queen's College, Kingston, 1899.
Robertson, Lemuel, B.A., McGill University, Montreal, 1899.
Brandon, James S., B.A., University of Queen's College, Kingston, 1899.
Smith, Minnie, B.A., University of Manitoba, 1899.
Clark, George W., M.A., University of Queen's College, Kingston, 1899.
Clark, William T., B.A., University of Queen's College, 1899.
Miller, Levi T., B.A., Bishop's College, Lennoxville, 1899.
Maxwell, Alexander M., B.A., University of Toronto, 1899.
Perrin, Evelyn M., B.A., University of Toronto, 1899.
Brown, Clarence L., B.A., McMaster University, 1899.
Bonis, Sara, B.A., University of Toronto, 1899.

The following holders of First Class, Grade B Certificates passed the additional standard now required for First Class, Grade A Certificates:

Tait, David S.
Bovyer, George M.

FIRST CLASS—GRADE B CERTIFICATE.

(Maximum Marks, 3,650.)

	Marks Obtained.
Tingley, Laura	2,721
MacLean, John D.	2,519
King, Garfield A.	2,398
Olding, Harriet	2,367
McMordie, Robert A.	2,345
Moffet, Frank B.	2,324
Tupper, James F.	2,294
Anderson, Christina S.	2,243

The following holders of Second Class, Grade A Certificates passed the additional standard now required for First Class, Grade B Certificates:

McSween, Edwin H.
Campbell, John A.
Campbell, Leonard A.
File, Arthur.
Mebius, Jeanette.
Fletcher, Marie L.
Dykes, Watson.
Nason, Mary A.
Furness, Katie.
Menton, Maude L.
Millard, Blanche.
Caspell, Edmund.
Uren, Fanny.

SECOND CLASS—GRADE A CERTIFICATE.

(Maximum Marks, 3,050.)

	Marks Obtained.
Lyons, Isabella	2,337
Allison, Dorothy	2,264
Watson, Harvey	2,231
Elliott, Dawson H.	2,190
Parker, Edith Clara	2,189
Carter, Elizabeth H.	2,137
Bruce, Leslie J.	2,107
Allan, Robert H.	2,102
Olding, Elizabeth	2,099
Burns, Margaret M.	2,074
McQueen, Jessie	2,043
Robson, Robert M.	2,036
Campbell, Samuel B.	2,025
Johnstone Jean P.	2,004
Abercrombie, Lena	1,999
Walker, Susie	1,991
Kinney, William T.	1,980
Ingram, James A.	1,979
Crase, Anna E.	1,973
Brown, William H.	1,971
Hawthorne, Edith E.	1,968
McIvor, Henrietta	1,958
Fernie, Edith S.	1,944
Wriglesworth, Annie L.	1,930
McDonald, Benson S.	1,929
Laird, Mary	1,927
Dixon, Mrs. Alice E.	1,918
Pope, Marion A. B.	1,918
Campbell, Jessie	1,912
Rowan, Jessie F.	1,911
Macken, Norine	1,910
Hamilton, Myrtle P.	1,909
Laughlin, Hugh A.	1,906
Draper, Katherine	1,899
Goodrede, Albert B.	1,897
Bradley, Nellie S.	1,884
Sinclair, Jessie	1,883
Philip, Alice M.	1,882
John, Alice	1,854
MacLeod, George A.	1,849
Bates, John A.	1,841
Moffatt, Maude L.	1,832
Goostrey, George F.	1,832
Pearce, Emmeline	1,830
McSween, Peter D.	1,830

SECAND CLASS—GRADE B CERTIFICATE.

(Maximum Marks, 2,450.)

	Marks Obtained.
Clark, Edgar F.	1,593
Clarke, Earl W.	1,557
Howitt, John	1,540
Randle, Olive	1,481
Campbell, John M.	1,477
McIntyre, Mary C.	1,467
Cameron, Florence M.	1,466
Cooke, Alfred W.	1,460
Laird, James W.	1,459
Dalby, Edith M.	1,449
Paul, Margaret M.	1,449
Abercrombie, Margaret	1,431
Reith, Isabella	1,431
Ladner, Mrs. Ella B.	1,417
Canfield, Francis O.	1,417
Eckart, Alfred E.	1,417
Forrest, Theresa	1,416
McLeod, Norman	1,400
Robertson, Jessie A.	1,397
Lewis, Alice M.	1,392
Slater, John C.	1,386
Kingston, Emilie G.	1,385
Donaldson, Nellie T.	1,382
Cairns, Mabel	1,378
Agnew, Ena	1,371
Sylvester, Louise M.	1,371
Wells, Lillian E.	1,359
Clement, Mabel M.	1,358
Butler, Claude H.	1,346
Dutton, Edward J.	1,337
Matthews, William A.	1,337
Newson, Annie M.	1,317
Teague, Julie A.	1,311
Johnstone, Marion B.	1,308
Blair, J. Alfred	1,281
Whelan, Mary E. J.	1,281
Taylor, Robert W.	1,267
Curry, Almeda	1,265
Robinson, Sarah V.	1,263
Duncan, Rose	1,236

THIRD CLASS—GRADE A CERTIFICATE

(Maximum Marks, 1,850.)

	Marks Obtained.
Parkinson, Emily	1,209
Wilson, Mrs. Belle H.	1,118
McLennan, Annie	1,041
Buttimer, Annie L.	1,027
Shepherd, Mrs. Harriet	1,013
Clark, Elizabeth A.	1,005
Dyker, Jennie	925

THIRD CLASS—GRADE B CERTIFICATE

(Maximum Marks, 1850.)

	Marks. Obtained.
Acheson, William C.	1,191
Murphy, Edgar H.	1,185
Macdonald, Jean A.	1,134
McKinnon, Kate M.	1,129
Fleming, Pearla W.	1,113
Bone, Maude E.	1,102
Johnson, Margaret A.	1,068
Wolfenden, Kate C.	1,067
Graham, Alexander	1,058
Harrison, Alice V.	1,056
Galbraith, Agnus	1,054
Scanlan, Kate R.	1,047
Ball, Beatrice	1,029
Griffiths, Ada W.	1,023
Beattie, Florence	1,018
Loat, Gertrude	1,017
Willemar, Adelaide M.	1,016
Lewis, Lizzie	1,005
Wright, John	1,005
Robertson, Margaret M.	1,001
Trenholme, Hattie D.	1,001
Shaw, Alexander	994
Lovering, James E.	987
Wood, Mabel Y.	986
MacLeod, Annie	977
Gibbon, Evelyn H.	963
Wilson, Elizabeth	963
Harrap, Eva E.	958
Buckle, Agnes	955
Booth, Annie	953
Lucas, Mary	950
McLachlan, Kate B.	947
Moore, Bibianne	947
McKinnon, Alexander	946
Arthur, Elsie M.	940
Catherwood, Thomas	937
Creech, Winifred J. E.	921
Macfarlane, Edith M.	927
Graham, Melvin	919
Cochlan, Lenore M.	914
Dunlop, Mary B.	912
O'Reilly, Nora A.	907
Case, Henry O.	905
Rowell, Bertha J.	903
Hammond, David	903
Barron, Isabel M. F.	878
McMartin, Jane S.	869
Fenton, Susie A.	858
Butler, Gladys A. K.	851
McCannel, Mary J.	850
George, Ruth	847
Mills, Sarah A.	838

The Tennis Tournament.

Mr. and Miss Goward Win the Mixed Doubles From the Champions of Seattle.

Finals in the Club Handicap to Be Played This Afternoon—Other Events.

Again yesterday the courts of the Victoria Lawn Tennis Club were favored with a large attendance of tennis enthusiasts, the ladies as usual being in the majority, and with their bright summer gowns adding beauty to the scene. There were among those present many visitors from the Sound cities, including Mr. G. A. Hurd, the champion of Washington, and Mr. L. Pelly, of Seattle. There were a number of exciting matches, the most interesting of which, however, was that between Mr. A. T. Goward and Miss Goward, of Victoria, and Mr. S. Russell and Miss Riley, of Seattle. The Victoria pair won after a very hard match. It was unfortunate that the visitors met so strong a team at such an early stage in the tournament, as they had not had time to accustom themselves to the grass courts, they being used to playing on cement courts.

The club is suffering a severe loss through the inability of Rev. Canon Beanlands to officiate as referee, he being too ill to this year undertake those arduous duties, which he has carried out so satisfactorily for years past.

During the afternoon an excellent tea was provided by the lady patronesses of the club.

Here are the results of yesterday's matches:

G. A. Hurd beat H. A. Goward—6-4, 6-0.
Miss Arrowsmith beat Miss S. Short—6-2 6-1.
Miss Kitto beat Mrs. Leather—6-2, 7-5.
Mrs. E. Crow Baker and Miss Dennistoun beat Mrs. Langley and Miss Eva Loewen—6-2, 6-1.
Mrs. W. Johnson and Miss Berridge beat Miss G. Loewen and Miss C. Powell—6-1, 6-2.
Miss Twigge beat Miss Robertson—6-2, 6-2.
A. T. Goward beat W. S. Fraser—6-0, 6-3.
R. H. Pooley beat F. T. Cornwall—10-8, 20-18.
S. L. Russell beat G. S. Godfrey—6-3, 6-3.
B. G. Goward and Miss M. Green beat R. J. Fell and Miss Berridge—6-4, 6-4.
Mrs. Godfrey beat Mrs. Rollins—6-2, 1-6, 6-1.
R. H. Pooley and Miss Keefer beat W. B. Van der Gucht and Miss A. Bell—6-2, 6-0.
L. Pelly beat D. M. Rogers—6-1, 5-7, 6-1.
C. B. Innes and Miss B. Wolfenden beat F. B. Pemberton and Miss S. Pemberton—7-5, 6-4.
J. F. Foulkes and A. T. Goward beat B. G. Goward and Capt. Beale—6-1, 6-1.
G. C. Johnston and Miss Prior beat P. S. Lampman and Miss D. Green—6-4, 6-3.
Miss Twigge and Miss Beattie beat Miss E. T. Drake and Miss M. Drake—6-1, 6-2.
Mrs. Rollins and Miss Riley beat the Misses Short—6-0, 6-3.
J. F. Foulkes and Mrs. Burton beat G. S. Godfrey and Mrs. Godfrey—6-1, 6-1.
H. B. Haines and Miss Arrowsmith beat E. Drake and Miss A. Drake—6-1, 8-6.
R. B. Powell and B. Langworthy beat Col. Grant (R.E.) and Maj. Trotter (R.M.A.)—6-1, 6-0.
A. T. Goward and Miss Goward beat S. Russell and Miss Riley—6-4, 6-2.
B. H. T. Drake and Miss E. Drake beat G. A. Hurd and Mrs. Hurd by default.
F. Macrae and Miss M. Macrae beat Lieut. Oxlade and Miss Kingsmill—6-2, 6-1.
R. E. Barkley and G. V. Cuppage beat H. Combe and H. Barnard—3-6, 6-1, 6-2.
L. Pelly and J. McIvor-Campbell beat G. S. Holt and C. R. Pooley—6 6-3, 6-1
C. H. Hilton and W. A. Lobb beat A. D. Severs and D. M. Rogers—6-4, 6-1.
G. S. Holt beat H. M. Hills—6-4, 4-6, 6-3.
D. M. Rogers and Miss Dennistoun beat B. Langworthy and Miss C. Powell—6-1, 6-3.
Miss Beattie beat Mrs. Johnson—6-2, 6-4.
C. Schwengers and G. Wilson beat J. B Green and C. B. Innes—6-1, 6-2.
J. M. Miller beat F. Macrae—6-8, 6-3, 6-2.
G. A. Hurd and S. Russell beat H. B. Haines and F. Macrae—6-1, 6-2.

RECENT INVENTIONS.

Ordinary shears can be made to cut button-holes by a new attachment, in which a sheath slips over one blade to hold a short-cutting blade, having a sharp point at the rear which punctures the cloth and allows the free blade to cut the hole to the desired size.

Cheese can be accurately cut by a new apparatus, patented by a woman, having a round base, on which the cheese rests, with a semi-circular plate at the top, having a flange with a series of vertical slits to guide the knife and divide the cheese into segments.

In order to ascertain, without the necessity of opening it, whether any mail has been placed in a letter box, a pivoted signal rod is attached to the side of the box, with a projection on the lid which swings the signal into a vertical position as soon as the lid is opened.

To aid firemen in putting out small blazes around them while directing a stream of water into a fire, an improved hose-nozzle has a series of small ports arranged around the central opening to direct auxiliary streams, with a revolving sleeve to shut the openings.—Chicago News.

Treasure Trove Of Boundary.

Confident Boast of Possession of Greatest Deposits in the World.

Railway Now Tapping This Wonderful District and Shipments at Hand.

Greenwood City, July 30.—Greenwood is in the full enjoyment of the flowing tide of prosperity. Its hotels are full, its cafes are crowded and its bankers, merchants and traders wear that sunny self-confident air which betokens abnormal profits. There is all the bustle and hurry and the restlessness that pervades a frontier city on the eve of a great campaign. And, in truth, Greenwood is on the eve of great things. The Canadian Pacific railroad is expending $5,000,000 building a railroad from Rossland to the Greenwood country. That railroad will span mountains, cross ravines and precipices and when completed will be one of the finest engineering triumphs that the age of science can boast of. Indeed, the Columbia & Western is destined to fame and fortune. The traveller who journeys in a palace car from Rossland to Greenwood will wend his way through a country of glorious beauty and of enchanting scenery. While the cars rattle along the slopes of Bulldog mountain, he will see Lower Arrow lake spread out before him a mirror of the most perfect beauty of mountain, lake and forest scenery in the world. Scarcely has he crossed the summit and lost sight of Arrow lake when a new wonder bursts upon his view, and there below is Christina lake, lovely, calm and placid, with its wooded shores and its majestic mountains. From Christina lake to Kettle river it but a step, and then the traveller is rushed along the banks of the most enchanting river in the West. I have strolled and hunted along the banks of this lovely river when the woods that overshadow the crystal waters were gold and green and purple; and I have almost prayed to the gods that my lot might henceforth be among the glades and woods and meadows and gardens of the Kettle River Valley. But while this land of lotus-eater is not for me, blessed are they whose waking hours are spent in the shadow of the lovely mountains that overlook the Kettle river. Not all the beauty of the romantic Rhine nor all the loveliness of Blackwater's tide can rival the enchantment of this valley of the Kettle river. And this is the country through which the Columbia & Western railroad will carry the traveller. And yet it was not for tourists, poets or artists that millions are being spent building this railroad. When completed it will extend from the Columbia river to Hope on the Fraser. It will cross three dividing ranges and it will tap the richest mineral region on the globe. It will be nearly 400 miles long, and it will be seen that this vast mineral country over which this Columbia & Western railroad will spread itself is a kingdom in itself and a kingdom richer in golden treasure than any ever before given by the gods to the sons of men.

One of the branches of the Columbia & Western will extend south from Rholt and spread itself out into a number of tiny branches gridironing the slopes and summits of the district enclosed by Boundary creek and the north and west fork of the Kettle river. This district is as large as an Ontario county or a New England state, and its mineral wealth promises to surpass anything ever known before. It looks as if it would produce more copper than Butte and more gold than South Africa. Of course, not an ounce of gold or a pound of copper has yet been shipped therefrom, and the value of these vast mineral deposits can only be guessed at till the railroads and smelters are in full swing. The smelters and railroads are being rapidly pushed to completion, and with the new year this district of Greenwood will be sending its supplies of gold and copper to the commercial centres of the world. Nowadays men do not spend millions building roads and smelters and developing mines before they have become thoroughly satisfied that those millions will come back in dividends. The Canadian Pacific railroad expects to reap a golden harvest of big dividends from its Columbia & Western branches, and it is rushing them to completion. Over at the Greenwood camp proper are deposits of gold and copper ore of almost fabulous extent. "Our ore bodies in the Knob Hill and Ironsides are so extensive," said Superintendent Williams to me recently, "that when the time comes we shall quarry and not mine. It will be just as easy for us to mine a thousand tons as a hundred tons a day."

The Stemwinder, the Brooklyn, the Rawhide and other mines owned by the Mann & Mackenie people are just as promising as the Knob Hill and Old Ironsides. Senator George Cox is associated with Mann & Mackenzie, and they are about to build smelters to treat the ore from their mines. In the same gold belt also is the Tamarack and Monarch, owned by R. E. L. Brown, the world-renowned mining engineer. Mr. Brown holds a judgment against Paul Kruger for a couple of millions, which, I understand, the United States will pretty soon enforce; but I am told by the best experts that the Monarch and Tamarack will make Mr. Brown more money that his judgment against the Transvaal. Lying between the Tamarack and Knob Hill is the War Eagle. Three crews are actively developing the War Eagle, and Mr. Peter Joyce, the superintendent, hopes to make as big a mine as Brown's Monarch or Dan Mann's Brooklyn or Jay Graves' Old Ironsides. I looked over the property along with Major Leckie and Alexander Dick, and both these excellent judges of mineral property look for golden things for the War Eagle. These are only some of the mines in the Greenwood camp. They are being developed by men of large capital, and it looks as if they would furnish vast traffic to the railroad, large employment to labor and big dividends for many generations to come.

It is impossible yet to say what the value of the ore in the Greenwood camp will average. Roughly speaking, it ought to run about one-half ounce in gold and about twenty-five pounds of copper to the ton. But the ore can be mined in large quantities, for the deposits are phenomenal. Five miles to the northwest of Greenwood camp is Summit camp. Here I saw a mine called the B. C. that is a copper mine par excellence. On the 150-foot level I measured between walls 29 feet of calco pyrite ore, and this ore will run over 10 per cent. in copper. I found the same ore chute on the 50-foot level, and I saw three other ore chutes in the mine. A tyro can calculate 50,000 tons of ore in sight, and this ore is worth $1,000,000 in copper alone. It runs low in gold only, about $3; but in silver it runs over $5 to the ton. But it is a great copper mine. There is 1,000 feet of shafts and tunnels in the B. C., but when the railroad reaches the mine ore hoisting and compressor plants will be installed, and then the B. C. will take its place as the biggest copper producer in British Columbia. This mine has been developed under the management of Major Leckie, and happy fruits of rare scientific knowledge and sound business judgment are at once apparent in the work done in this mine. Closer to the B. C. is the R. Bell, a mine in its initial stages of development. In a crosscut from the 50-foot level the vein has been intersected and a ledge three feet wide of rich copper ore has been proven. This ore runs 15 per cent. in copper and is very high in silver, and it looks as if the R. Bell would become a phenomenally rich copper mine. The Oro de Noro is another most promising prospect at Summit, on which work is being pushed by its owners. About ten miles south of Summit is White's camp. The mines of that camp are on both sides of the boundary line, and each day's development gives greater golden promise. The Lone Star and Washington is a phenomenally rich mine. It has immense deposits of high-grade ore, and it looks as if it would take its place among the most noted mines of the camp. Around the Lone Star and Washington are other groups of mines of great promise, and I shall not be at all surprised to see the C.P.R. reap immense profits from White's camp. To the west of Greenwood City is the Deadwood camp. In this camp is the Mother Lode, a mine owned by New York capitalists. I measured myself 202 feet of solid ore between walls in this mine. It is not a high-grade ore, but it will pay to work on a large scale, and some day it will make a fortune for its stockholders. The Mother Lode people are about to build a smelter, and the railroad is granded to within a mile of the mine, and will be ready to haul ore in ninety days.

Close to the Mother Lode is the Morrison. Peter Joyce, under whose able management the Great Centre Star mine of Rossland was developed, went through the Morrison with me. He was highly pleased at the work done, and at the earmarks the Morrison gives of developing into a great mine. A tunnel was driven to strike the main vein at a depth of 170 to 500 feet in; an uprise was made to the shaft and the tunnel is in 40 feet beyond the shaft, and is expected to strike the vein at any moment. From where it strikes the vein on the dip there will be nearly 200 feet of stoping ground to the surface. When driving the tunnel to connect with this shaft and to cut the main ledge two other veins of fine ore were encountered. The first of these was eight feet wide and looked big and strong enough to make a mine by itself. The second was a small vein, but it has shipping ore. When the big lode is struck all three veins will be developed and the tunnel will be pushed on to cut other veins that are known to exist to the east of the main vein. In fact, the Morrison seems to be honeycombed with deposits of fine ore, and the management is pushing work rapidly so as to be able to ship when the railroad reaches them. This will be in a few months.

The Buck Horn is another of the Deadwood properties that promises to make a great copper mine. Fourteen men are working at it prospecting the ledge, putting up buildings, making roads and getting ready to install the big machinery plant which is to develop the mine. The Buck Horn is a high-grade copper ore and is rich from the grass roots, and the vein looks as if it were thirty or forty feet wide, and I shall not be surprised if the Buck Horn develops into one of the great mines of the Deadwood district.

To the northwest of Greenwood and close to the Deadwood camp is a group of mines managed by Mr. John Leckie and owned by a London and Canadian syndicate, of which Hector McRae is the representative in Canada. These mines give fair promise from the surface, and with depth rich deposits of native silver have been discovered, and this ore is being sacked and shipped and is found to run thousands of dollars to the ton. The development is highly gratifying to the people of Greenwood as well as to the syndicate of London and Canadian capitalists who own these properties.

It is the development of the mines, the building of railroads and the influx of experts and capital from all parts of the world that make merry times in Greenwood. I find no pessimists here. The folks believe that the mountains surrounding Greenwood are store houses of mineral wealth surpassing anything ever yet discovered, and they expect to share in the golden harvest of the morrow. That morrow will bring many and varied disappointments, for human life is a life of vicissitudes; but yet this country will enable multitudes to live in happiness and comfort, and will confer wealth and affluence, if not renown and fame, upon some of the soldiers of fortune whom chance or fate wafted to these glorious mountain regions of the West.

P. A. O'FARRELL.

A SHIP'S COMPASS.

Cargo of Canned Fish One of Many Causes of Temporary Deviation.

From the Montreal Gazette.

Discussions have recently taken place with reference to compasses on board iron and steel built vessels. Few people among the general public have any knowledge of the difficulties encountered by officers of ships in connection with the action of iron on the compasses situated in different parts of the ship. It may therefore appear strange to some to be told that it is quite possible for the north point of the needle of each compass on board to take a different direction while the vessel is upon the stocks being built and for some time after being launched. This is called the natural deviation, and will remain until the compasses are adjusted to be as near as possible correct magnetic, which is the object to be attained by swinging the ship for that purpose.

Should a number of compasses be placed upon separate wooden rafts, situated in different parts of our harbor, their needles would all point to the north magnetic pole, provided that no iron bolts had been used in the construction of these rafts to affect them.

It is, however, a fact well known to seamen that every iron or steel ship becomes a magnet during the process of building. The magnetism of each individual ship depends upon the hemisphere in which she is constructed, the direction of her head or bow is placed in while being built, the dip of the needle in that locality, the length of time occupied in building, and the amount of percussion the vessel is subject to while she is being riveted.

It is admitted that certain magnetic directions in which to lay down the keel of a vessel are preferrable to others, but building yards for ships cannot always be selected with this end in view.

While upon the stocks, the magnetism of some vessels is strong and of a very pronounced character.

After launching a portion of it is lost, especially if the bow be reversed for any considerable portion of time.

It is a good plan to change the direction of a ship's head immediately she is floated, and for some time before she proceeds upon a voyage. This custom is adopted in most of the large passenger steamship companies.

The original magnetism, however, never leaves the ship entirely, although it generally becomes weaker, but the compasses require to be adjusted and compensated for errors caused by the attraction of various kinds of iron situated near them, as well as for a permanent magnetism acquired in building.

If a vessel is built in Great Britain and brought out to Canada it would be a wise and necessary precaution for the owner to have the compasses readjusted on her arrival here and previous to her leaving port to be employed in the coasting trade.

Unfortunately we have no proper place selected for swinging ships for this purpose.

POLES ON THE SHIP.

An iron vessel built in the northern hemisphere, with her head north magnetic, becomes magnetized so that her bow is a north pole and her stern a south pole. She is, in fact, a magnet with her polar axis running fore and aft—that is to say, from bow to stern. Should she be built with her head east in this harbor, her polar axis will run athwart ships. The port side will then have northerly and the starboard side southerly magnetism.

In this case when steering upon our coast either east or west there may be little or no deviation of the compass caused by this kind of magnetism, but when sailing north or south up the Bay of Fundy, or towards Cape Ray, the north pole of the compass will be attracted towards the starboard side of the ship which has acquired the opposite magnetism.

It has been frequently observed that after an iron ship has crossed the Atlantic, coming west, the compasses were affected when the vessel's head was turned up to the northward, making for this harbor; this is usually termed retentive magnetism, and does not remain very long after the cause has been removed, which is in consequence of her having been for some time in one direction.

Similar circumstances take place when a ship is lying in one direction in a dock for a considerable period.

A man who takes command of an iron vessel ought to be acquainted with everything in connection with her magnetic character. He should understand his ship as a jockey knows all the points of a horse, and it is the duty of a ship owner or manager of a shipping company to inform him of the position the vessel's head was placed in when being built, the date she was swung for the adjustment of her compases and also provide him with cards of deviation for each of the compasses.

Wooden ships have very little deviation of their compasses, and the binnacle compass needle generally points to the correct magnetic north pole unless it is influenced by the magnetism of any iron, especially vertical iron situated in its vicinity, or by the magnetic action of the cargo.

"THE NORTH POLE."

The north magnetic pole is situated to the northward of Hudson's Bay on the Booth's peninsula and probably includes a portion of the land at Cape Felix, on King William's Island, as the magnetic pole is not a point like the true pole, but it covers an area of from 45 to 60 miles. Sir John Franklin met his death near this locality in 1847.

Many large ships carry a standard compass, to which the others may be referred, although each compass should have a separate deviation card. When a ship is supplied with a standard compass, it should always be used for navigating purposes, and on most of the large ocean passenger steamships such is the case. Officers of ships should therefore be continually taking observations for ascertaining the errors of this compass, and note any changes that are taking place in the deviation. Many accidents occur from want of knowledge of how to apply the deviation. It is well known that a large quantity of railroad iron affects the compass, and sometimes the magnetism induced in case oil tins will also attract the needle, as these so-called tins are generally made of thin sheet iron covered with a coating of tin. Lobster tins, in the vicinity of the compass will also have an influence upon the needle.

Several cases of this kind of attraction have been reported to me, having come under the notice of officers of wooden sailing ships, which made many voyages from New York to Eastern waters. They were impressed with the idea that it was some metallic quality in the oil that caused the compass disturbance. This, of course, could not be the case.

An iron spanner or monkey wrench, or even a marlin spike, carelessly left near a compass, will sometimes make an alteration of the direction of the compass needle, amounting to one or more points, and it has been known that a magnetic belt worn by a seaman suffering a ship has suddenly affected the compass, causing the vessel to deviate from her course to a considerable extent.

SLIGHT CAUSE OF A WRECK.

It is very probable that the loss of a fine steamship with all hands may yet be attributed to the negligence of the carpenter in forgetting to remove the iron spanner he had been using to tighten up the spider band on the head compass. This being left in a vertical position near the compass while the man went to his dinner.

Dynamos used for the purpose of lighting the ship by electricity have sometimes affected the compass so that the steering of the ship was made erratic. For safety no dynamos should be placed at a distance of less than thirty-five feet from the standard compass. The Admiralty Manual states that experience has shown this as being sufficient to avoid any chance of disturbing the needle. On board H. M. ships great care is generally taking in the management of the compasses, which are under the supervision of the navigating officer. As a rule one dynamo is always in operation in most men-of-war, even during the daytime, for the purpose of lighting up the engine room and stoke holds and bunkers, as most of these places are under the protected decks. While these ships are being swung for the adjustment of the compasses, deviation cards are sometimes made out when each dynamo is running separately and for the dynamos when running all together.

Affairs therefore in connection with the compass become complicated if the greatest possible attention is not given to the matter. I am informed by an officer of one of the vessels in port that most men-of-war are swung for compass correction at least once a year, or upon any great change of geographical position. Observations for ascertaining the deviation are to be taken at least once a day, or upon any change of the compass course. This officer has also allowed me to inspect some Napier diagrams or curves of deviation, taken in various localities, showing the deviation upon the different directions of the ship's head as the result of swinging her at different ports, which is most interesting.

I am also indebted to the navigating officer of the cable steamship Minia for diagrams taken on board that ship. This officer passed a most creditable examination before me at St. John, N. B., and was selected by the late Capt. Trott as the navigating officer for the ship.

Most of the foregoing information is not new, but is or should be known to all officers who have charge of the navigation of an iron ship.

W. W. SMITH.

Halifax, N. S., July 18, 1899.

FAME'S PATHWAY.

While at the Norwich military academy George Dewey was the star actor in all the college amateur theatricals. He was a splendid mimic, and his imitations of the various members of the faculty won him a lasting reputation in the school.

William F. Coston, who designed the army transport flag now in use on all government transports, and received a patent for the design on June 13, 1899, has assigned the patent to the war office for the nominal sum of $1. The assignment has been accepted, on the part of the government, by Col. Charles Bird, quartermaster in charge of the transport service.

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BRITISH STEAMER'S BAD LUCK.

Puts to Sea After Temporary Repairs, But Nearly Goes to the Bottom.

St. John's, Nfld., Aug. 1.—The British steamer John Bright, from Batiscan, July 13, for London, which arrived here a fortnight ago, with her bows stove in by collision with an iceberg in the Straits of Belle Isle, left here yesterday to resume her voyage, having received a temporary wooden bow. During a severe storm which prevailed last night this structure went to pieces, and the ship narrowly escaped going to the bottom. She had to return here to-day, with her pumps going constantly to keep her afloat. She will have to be docked again, and she will probably make permanent repairs here.

CHATHAM MAN MAIMED.

Tried to Board Moving Train, With the Common Result.

Winnipeg, Aug. 2.—(Special)—Earl Foye, a young man aged 25, from Chatham, Ont., had his leg crushed to a pulp while attempting to board a freight train at Brandon last night. He missed hold on the iron rod on the side of the car, and fell under the wheels.

THE MACHINE IN DOMINION ELECTIONS.

From the Toronto World.

The frauds of the West Huron election are coming to the surface in spite of the attempt made by the Liberal members of the committee on privileges and elections to prevent the truth being disclosed. Recently it was proved that the same frauds which characterized the local election in West Elgin were also a feature of the Dominion election in West Huron. The machine was at work on both occasions, and practically the same disgraceful methods were adopted to elect Liberal candidates of the two constituencies. One case of ballot-box stuffing has already been established, and other disclosures are promised. At one polling subdivision 14 fraudulent ballots, all marked for Holmes, the Liberal candidate, found their way into the ballot-box and were counted for the Liberal candidate. These spurious ballots had been printed by some of the scoundrels who were running the machine, or they had been stolen by them, and furthermore, the initials of the deputy returning officer had been forged on these ballots. The crimes which burglars and forgers are obliged to commit in the course of their business were perpetrated by the manipulators of the machine in the West Huron election. The new fact of importance disclosed by the investigation at Ottawa is that the machine has been stealing elections for Sir Wilfrid Laurier, as well as for Mr. Hardy. When the West Elgin disclosures first shocked the public, it was hardly credited that Sir Wilfrid Laurier was profiting by the same despicable methods that were followed by Hardy to keep his outfit in power. Now, however, we have direct and positive evidence that larceny and forgery are among the means which have been used to elect Sir Wilfrid Laurier's supporters.

The whole Liberal party is honeycombed with corruption. Not only have they disgraced themselves as a party, but the fair name of the Dominion is dragged in the mire. Whether Sir Wilfrid Laurier was or was not personally aware that the machine was at work in his interests throughout Ontario, it is a fact that his party as a whole was cognizant of the methods that were being used to elect his supporters. The government cannot escape responsibility for the existence of the machine.

If Sir Wilfrid Laurier will permit his henchmen to commit larceny and forgery in his interest, can we expect that he will hold in check the spendthrifts who are now rioting in the public treasury? Is there any doubt in the world that hundreds of thousands of dollars have been put in the estimates this year for the purpose of creating funds for the coming general election and for bribing the electorate? Where does the money come from that keeps the machine in running order? Where does the money come from that pays the thieves who steal ballots and the forgers who fraudulently mark them? The initial source is the public treasury. Thence it dribbles in divers and sundry ways to the scoundrels who are at large throughout the country corrupting the people and scandalizing the nation.

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NOTICE TO SHAREHOLDERS.

A meeting of the shareholders of the Miles Canon and White Horse Tramway Company will be held at the offices of Messrs. Hunter & Oliver, at No. 21 Bastion street, in the City of Victoria, British Columbia, on Monday, the 21st day of August, A.D. 1899, at 11 a.m.

Business: Appointment of directors, allotment of shares and the business of the Company in general. By order.

E. G. TILTON.
GEORGE SHAW.
SYDNEY ASPLAND.
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