

## AN ELECTRIC THERMOMETER.

M. Becquerel has been engaged during the winter in experiments, the object of which was to ascertain whether snow had the effect of protecting the ground from frost. In carrying out these experiments, he pressed electricity into his service in a most ingenious manner. Before describing his apparatus, we may, however, state that the result of his experiments were as follows: That a covering of snow does not protect the soil and seed from freezing, but only hinders to a certain degree the too extensive radiation of heat from the soil, and is converted into water at thirty-two degrees, which sinks into the earth and somewhat raises its temperature. Also, that a heavy sod does more to protect the soil and raise its temperature than ever so thick a layer of snow. The experiments were carried out in the Jardin des Plantes, Paris, and in the following manner. Two covered wires of unlike metals—copper and iron—were soldered together at both ends, which were left uncovered for this purpose; otherwise they were covered their whole length, for the purpose of insulation, with gutta percha and silk. On the soldered ends of these double wires being exposed to different temperatures, a current is generated in them, and the greater the difference in temperatures, the stronger the current; but the current ceases when both are exposed to the same temperature. This electric current was caused to act on a magnetic needle suspended so as to move freely over a graduated circle. The copper wire formed a vertical frame around the needle parallel to its normal direction. As long as both ends of the double wire are at the same temperature, the needle continues to point to the north, being subject only to the earth's magnetism; but as soon as there is any variation in temperature, the needle is sure to move instantly and take another position which it will keep until some other change of temperature takes place; The application of this apparatus to the measurement of soil temperatures was made as follows: One of the soldered joints was buried in the earth to a depth at which it was desired to take the temperature, and the other end was put in a water bath at any desired distance from the first. The temperature of the latter could be increased or diminished at pleasure, and was measured by a very sensitive thermometer. To ascertain the temperature in the soil where the other end was buried, it was only necessary to raise or lower the temperature of the water bath until the magnetic needle stood at zero, and then read the thermometer.—

NOTES ON THE CRIMINAL STATISTICS  
FOR THE YEAR 1880-1.

The accompanying table of criminal statistics is reprinted from the blue-book recently issued by the Department of Agriculture for the Dominion of Canada, and seems of sufficient importance to deserve notice in our columns, especially as there are one or two points of interest that its results suggest. The sum total of convictions for offences, viz., 29,225, is further subdivided into offences falling into the following classes:

1. Offences against the person, such as murder, assault, stabbing, etc., . . . . . 4,353.
2. Offences against property with violence, . . . 144
3. do. without violence, 2,094.
4. Malicious offences against property, . . . 499.
5. Forgery and offences against the currency, . . 35.
6. Other offences not included, . . . . . 22,100.

In class six, by far the largest count in the indictment, the headings are as follows:—

- Breaches of liquor laws, . . . . . 1,747.  
Vagrancy, . . . . . 2,082.  
Drunkenness, . . . . . 9,575.  
Breaches of Municipal Acts and By-laws, 2,563.  
Riot and breaches of the Peace, . . . . . 2,820.

It would be an interesting point to discover to what extent the immoderate use of liquor is chargeable with the offences registered, but upon this point the figures given are unhappily all but useless. It would have been a valuable addition to the table if the number of crimes committed under the temporary influence of

	Ontario.	Quebec.	Nova Scotia.	New Brunswick.	Prince Edward Island.	British Columbia.	Manitoba.	N. W. Territories.	TOTAL OF CANADA.
<b>TOTAL CONVICTIONS.</b> .....	17,110	6,430	1,590	1,859	527	451	1,054	204	29,225
RESIDENCE.—Cities and Towns.....	8,572	5,115	1,374	1,487	354	316	757	3	17,978
Rural Districts.....	1,781	624	130	228	107	42	263	200	3,375
OCCUPATIONS.—Agricultural.....	663	163	37	96	63	7	79	3	1,111
Commercial.....	1,091	1,821	307	341	73	101	102	12	3,848
Domestic.....	1,167	372	110	96	28	21	82	6	1,882
Industrial.....	2,432	1,133	305	350	77	50	101	12	4,460
Professional.....	142	74	47	19	5	3	24	14	320
Labourers.....	4,124	1,619	357	684	189	199	370	128	7,700
CONJUGAL STATE.—Married.....	4,694	2,518	461	493	146	53	337	28	8,710
Widowed.....	579	411	42	72	11	9	8	.....	1,132
Single.....	5,442	3,349	1,000	1,202	297	370	671	161	12,492
EDUCATIONAL STATUS.—Illiterate.....	1,558	1,944	415	310	154	215	255	11	4,862
Elementary.....	8,463	3,919	1,078	1,455	297	198	650	168	16,228
Superior.....	144	91	12	11	3	3	16	8	288
USE OF LIQUORS.—Moderate.....	3,838	2,305	1,054	339	105	124	283	131	8,179
Immoderate.....	6,879	2,905	451	1,433	345	302	709	49	13,073
PLACE OF BIRTH. { England and Wales.....	1,370	345	110	65	12	71	56	2	2,031
British Isles. { Ireland.....	2,432	828	133	251	16	65	135	10	3,870
Scotland.....	603	163	76	23	3	11	61	.....	940
Canada.....	5,477	4,486	1,063	1,328	418	197	577	139	13,685
United States.....	754	157	42	51	6	33	137	15	1,195
Foreign.....	169	193	33	44	1	44	55	12	551
Other Brit. Possessions.....	16	29	44	11	2	7	.....	.....	109
RELIGIONS.—Baptists.....	251	7	91	182	14	2	16	5	568
R. Catholics.....	4,140	5,335	764	990	272	135	443	80	12,159
Church of England.....	1,586	226	205	218	43	79	261	11	2,629
Methodists.....	1,137	34	50	127	36	26	67	8	1,485
Presbyterians.....	1,268	72	106	129	79	19	118	33	1,824