

## LORD PALMERSTON AS A STUDENT.

Peter Bayne, writing to the *Watchman & Reflector*, says that when Sir Wm. Hamilton was editing the works of Dugald Stewart, and could find no trace among his manuscripts of his Lectures on Political Economy, he was supplied with verbatim notes of the whole course by Lord Palmerston, who had taken them in shorthand, when a student at Edinburgh, and afterwards written them fairly out. As Mr. Bayne remarks, "A more laborious operation one can scarcely conceive," and the fact may well impress some of our pigmy students with the means by which greatness is achieved.

## IV. Papers on Meteorology.

## 1. METEOROLOGY IN UPPER CANADA.

In 1850, Mr. Hincks introduced into Parliament an act, embodying a clause for the purpose of promoting the taking of meteorological observations in Upper Canada, in connection with the Grammar Schools of the Country. The clause was the suggestion of Col. Lefroy, who was connected with the observatory at Toronto, and who urged upon the attention of Dr. Ryerson, the importance of the subject. The clause, after setting out the importance of directing attention to natural phenomena, and encouraging habits of observation, as likely to induce a better knowledge of the climate and meteorology of Canada, and be serviceable to agriculture and other pursuits, and of value to scientific enquirers, made it incumbent upon each County Council to supply to the Senior Grammar School of the County certain instruments which were enumerated. The Bill did not pass until 1853, and arrangements were subsequently made by Dr. Ryerson, in London, to procure the instruments—in the selection of which, he had the assistance of Col. Lefroy, and these instruments were furnished to Counties at a very reasonable rate. Many of the Grammar Schools at once availed themselves of this offer, and for some years past observations have been taken at different points in the Province which have been compiled from time to time, and published in the *Journal of Education*.

We are glad to learn that the importance of this subject has continued to engage the attention of the educational department and of the government. They have never lost sight, as Mr. Hodgins remarked in a paper read by him before the Canadian Institute some years ago, of the great practical importance to a new and partially settled country, of establishing, early in its history, before its physical condition is materially changed, a complete and comprehensive system of meteorological observation, by which may be tested theories in physical science which are yet unsettled, and by which may be solved questions relating to natural phenomena which have long remained among the sealed mysteries of nature. The observations thus far have been, in the main, taken by the Principals of Grammar Schools, where they have been taken at all, without remuneration, as a mere labour of love; and it is due to the Principal of the Hamilton Central School, to say that for some years he has steadily, and without fee or reward, kept observations which have been regularly transmitted to the department at Toronto, and has thus contributed to the aggregate of scientific information in its possession.

Recently, the Department has brought under the attention of the Government the importance of systematising this class of information by the establishment of regular stations throughout the country, under the supervision of gentlemen paid for their trouble, and thus under some more direct responsibility than could reasonably be imposed when no remuneration was granted. The suggestion was that ten stations should be established so distributed throughout the country as to afford the most complete information relative to the climatic feature of the whole Province, which in addition to the observatories at Toronto and Kingston, make twelve in all. The points selected were, beginning at the extreme west, Windsor, Goderich, Stratford, Simcoe, Barrie, Hamilton, Peterborough, Belleville, Pembroke and Cornwall; that is, two stations on Lake Erie, one on Lake Huron, three on Lake Ontario, one on Lake Simcoe, one on the Ottawa river, one on the Bay of Quinte, one on the St. Lawrence, near the eastern extremity of the Province, and two in the interior of the country. A glance at the map will show that these stations have been admirably selected, and that a compilation of the reports from each, will afford a complete statement of the peculiarities of climate which exist in Upper Canada. The Government has acceded to the suggestion of the Department, and by an order in Council of the 29th November last, these stations have been legally and fully recognised. The gentlemen in charge of them will hereafter receive a slight remuneration—fifty cents a day we believe is the sum—which has been set apart out of the Grammar School fund for the purpose.

For some years the information compiled by the educational de-

partment from such returns as were in their possession, have been, at the request of that body, regularly transmitted to the Smithsonian Institution at Washington, by whom they have been introduced in their reports. The Committee of the House of Assembly on emigration have also received the returns, as being of great value in illustrating the peculiarities of the country, and removing those prejudices against its climate which have existed, even among educated people at home, in such exaggerated forms; and within the last fortnight, the Department of Royal Engineers have applied to be furnished with the returns, and will hereafter receive them, for use in considering and arranging questions of defence. These facts indicate, perhaps better than anything which we could say upon the subject, the importance of these researches to this country, and we are sure every one will learn with pleasure, that the work begun so many years ago under the suggestion of the learned Col. Lefroy, and promoted with so much zest by the gentlemen at the head of the Educational Department in Upper Canada, is now in a fair way of being systematised and fully accomplished. Every enlightened country in Europe is now diligently prosecuting enquiries into this most important branch of scientific study; and it is a source of pride and satisfaction to us that in this, as in every other department of scientific pursuit, Canada is worthily emulating the older and more advanced countries of the old world.—*Hamilton Spectator*.

## 2. GENERAL METEOROLOGICAL INSTRUCTIONS.

The French *Association Scientifique* has indeed commenced work with a will, and, although under M. Le Verrier's energetic administration it already deals with a much wider field of scientific inquiry than was at first administered, *meteorology*, its first love, will not be forsaken. The following instructions have been drawn up with the full knowledge that, although an organization of meteorological observations upon a uniform plan would be very desirable, this advantage cannot be completely attained at present. Observations are most frequently made by people who are willing to devote to them the time which is left at their disposal by other occupations; to that a system of invariable hours would deprive science of the assistance of a great number of earnest and devoted observers. The duty of the Association is, therefore, to endeavour to utilize what is now done by at once reforming whatever is defective and constantly labouring to perfect the general work. Not attempting to teach meteorology, or even the use of instruments, to those who have no notion of this science theoretically or practically, they desire to call the attention of observers to the precautions necessary for the avoidance of certain errors of almost universal occurrence. Hence the following code, in which, doubtless, will be found several hints useful to amateurs on this side the Channel, besides which it is interesting to compare the *modus operandi* recommended with that adopted among us.

Commencing with instruments, we learn that the Association will do for France what Kew does for England. Instruments which may be entrusted to it for comparison with the standards will be returned with a report of the verifications to which they have been subjected. The simple instruments of which they recommend the employment consist of a barometer, some thermometers, and a rain-gauge.

*Barometer*.—This instrument, they recommend, should be placed in a room the temperature of which varies as little as possible, and where the sun cannot reach it. It is necessary at each observation, after levelling the mercury of the cistern to the extremity of the ivory point, to give it several slight blows or shocks, in order to give the capillarity its normal value. The reading of the thermometer with which the instrument is furnished is indispensable for the reduction of the pressure to 0° C. When once in place, it should not be removed, except in case of necessity. The exact verification of a barometer already in use for observations should be made on the spot by a person furnished with an instrument which has long been tested.

*Thermometers*.—Observers are recommended to employ, as much as possible, thermometers graduated upon the tube itself. These are the most exact and the most certain. The reservoir should be cylindrical, and its diameter should not exceed five millimètres. Those which have the stem enamelled on one side are the easiest to read; but their course is sometimes less regular. Rutherford's minimum thermometer generally acts very well. It should be placed in a horizontal position, or very slightly raised at the ends opposite the reservoir; but in this case especial care must be taken to prevent its being agitated by the air, as this movement may cause a displacement of the index. The maximum thermometer of Negretti and Zambra is the most simple to experiment on and observe. There are several other maximum thermometers; but some of these require very delicate observation, and others are subject to derangements which render them useless. All thermometers must have a