

explain further. This inclination causes the sun to appear to vary in the year 47 degrees,  $23\frac{1}{2}$  on each side of the equator. This change in the relative position of the sun to the equator is called the "sun's declination in motion"; the distance north is called the declination north. The greatest declination north is reached on June 21st, when the earth is nearing aphelion, or the point most distant from the sun. This is called declination  $23\frac{1}{2}$  north; and, whatever the declination be, the sun is directly overhead at a corresponding number of degrees north or south of the equator, as the case may be.

As our latitude is about  $44^\circ$  north, the sun is never in our zenith, but is nearest to it when at  $23\frac{1}{2}$  north declination. Now, in mid-winter, when the earth is at perihelion (the point nearest the sun), the declination is  $23\frac{1}{2}$  south—that is, the sun is overhead at a point  $23\frac{1}{2}$  south of the equator. So it will be seen that the sun's rays fall at a great declination to us. The sun's elevation to us may be found when the declination is north by adding his greatest declination,  $23\frac{1}{2}$ , to  $90^\circ$ , less the latitude  $(90 + 23\frac{1}{2} - 44) = 69\frac{1}{2}$ ; in winter, by subtracting declination and latitude from  $90^\circ = 90^\circ - (23\frac{1}{2} + 44) = 22\frac{1}{2}$ . So it will be seen the sun's rays shine on us in summer at an angle of  $69\frac{1}{2}$ , and in the winter at an angle of  $22\frac{1}{2}$ . The sines of these angles represent the relative amount of heat received by us at the different times. Sine of  $69\frac{1}{2}$  is about three times as great as sine  $22\frac{1}{2}$ .

We conclude, the greater the obliquity of the sun's rays, the less the heat given. To prove that an oblique ray has not the power of one more nearly perpendicular, take a beam of heat of any size and draw it first on angle of  $22\frac{1}{2}$ , then on angle of  $69\frac{1}{2}$ . The amount of heat must increase as the space decreases. The intensity varies inversely as the space on which the beam falls.

Hoping I have not made too great a claim on your valuable space.

I remain, sincerely yours,

R. D. G.

Highland Creek, March 26th, 1886.

NOTE.—"Practical Methods" in next issue. For discussion we have offered a suggestion as to the propriety of setting before pupils a list of mis-spelled words for correction. A few opinions have been received, and we invite others to give the result of their experience. We have arranged to publish "Question Drawer" on the first of the month, and "Practical Methods" on the 15th. This will be a guide to contributors, who will please send in their communications in time. We go to press on the 12th and 28th of the month, and matter for publication should reach us, at latest, on the 9th and 25th.

### Literary Chat-Chat.

"Little Lord Fauntleroy" in *St. Nicholas* is a charming serial by that charming story-teller, Mrs. Frances H. Burnett. The story began with the current volume, and is to be run through the year.

The experiment in civil government made by the great Republic to the South has been, on the whole, a wonderful success. Ginn & Co. are shortly to publish a work, "Our Government," by J. Macy, Professor of History and Political Science in Iowa College, which promises to be useful to those who wish to study the American national Constitution.

D. C. Heath & Co. announce "A Short Manual of Chemical Arithmetic with a System of Elementary Qualitative Analysis," by J. Milnor Coit, Ph.D., St. Paul's School, Concord, N. H. This book is designed to be a companion to any book in descriptive or general chemistry, and to aid in making the subject more practical.

The *Canadian Exhibitor* is a new candidate for popular favor. It is a journal to be published by The Trades Publishing Co. of Toronto and Montreal. It promises to eschew all questions of party politics, its great object being to exhibit the material features of Canada as they are. It surely has a field, and we wish it success.

*Education for March* is a rich and readable number. It has eighty-two pages of reading matter, well divided into philosophical, practical, biographical and other articles.

"Our Little Men and Women" (D. Lothrop & Co.) for April, has a sketch "Easter Monday at the White House," which gives an account of the annual egg-rolling at the National Capitol; a jolly little true story of "A Colorado Donkey;" and a talk about "Balrooms and Air Ships," very fully illustrated, which the "little men" will like. Mrs. Dean writes of "Butterflies," and there is the fourth instalment of L. T. Meade's charming English serial,

"Mo and My Dolls." "The Adventures of Columbus" find him this month in Spain. Other brief sketches with verses make up this number of the bright little magazine which is profusely illustrated throughout. Only \$1.00 a year.

A school edition of Richard Grant White's "Words and Their Uses" has been published by Houghton, Mifflin & Co.

Irving's "Alhambra" is the latest addition to Ginn, Heath & Co's "Classics for Children."

D. C. Heath & Co. are to publish in May, Miss Elizabeth P. Peabody's "Lectures to Kindergartners."

### Official Information.

#### TEACHERS' EXCURSION TO COLONIAL AND INDIAN EXHIBITION IN LONDON, ENGL., 1886.

At the request of several School Inspectors and teachers, the representative of the Education Department at the Colonial Exhibition has applied for excursion rates from the principal ocean steamship companies.

The lowest rates offered are from Niagara Falls to London via New York and Glasgow for \$100, including first-class to New York and return, first-class ocean steamship passage from New York to Glasgow and return, and third-class from Glasgow to London and return.

Mr. C. F. Belden, ticket agent, New York Central R. R., Niagara Falls, N. Y., will give further particulars as to tickets, &c.

Dr. S. P. May, Commissioner of the Education Department for Ontario at the Colonial and Indian Exhibition, London, England, will make arrangements on due notice for teachers to visit educational institutions and other places of interest in London.

### Teachers' Associations.

GRENVILLE.—The Teachers' Institute for Grenville, and Division 2, Leeds, met February 25th. About 70 teachers were present. The president, Mr. C. Macpherson, occupied the chair. The reports of the several committees were received after which the Convention elected the officers for the ensuing year. President, W. S. Cady, of Kemptville; Recording Secretary, T. A. Craig, Kemptville; Corresponding Secretary and Treasurer, Rev. Geo. Blair. A committee of management was appointed. In the afternoon, Wm. Scott, B.A., Mathematical Master, of Ottawa Normal School, addressed the Convention on "Special points in Arithmetic" illustrated copiously. A large number of questions were put to the speaker which were very satisfactorily answered. Mr. H. J. Pierson, of Mattland, then read a paper on "Writing" which elicited considerable discussion. On the second day Mr. Scott read an able paper on "Learning and Remembering," in which was shown clearly the value of association, repetition, and the arousing of interest as aids to memory. The paper was followed by an interesting discussion in which Messrs. Blair, M. McPherson, C. Macpherson, Burwash, and Freeland took part. Mr. T. A. Craig, then read an able paper on the "Aid of occupation in preserving order," containing many valuable suggestions. Mr. C. Macpherson, Principal of the Prescott Public School, followed with a lucid discourse on "Drawing and Perspective," in which the art was practically shown to be simple and yet well worthy of attention. At the afternoon session, a discussion arose on Mr. Macpherson's remarks, and that gentleman answered a large number of questions ament perspective, with illustrations. Mr. M. McPherson, Head Master of Prescott High School, followed with an instructive address on "Literature for Teachers' Examinations." The speaker emphasized the advisability of studying literature in early life, and obtaining a copious vocabulary by the use of synonyms. This subject provoked a rattling discussion by Messrs. Burwash, C. Macpherson, Blair, and the President. Rev. Geo. Blair, I.P.S., gave the teachers a rambling talk under the caption "Notes by the Way," humorously outlining his visits to many schools, and at the same time furnishing the teachers with many valuable "pointers."

On Thursday evening, Wm. Scott, B.A., acting Director of Teachers' Institutes, delivered an excellent lecture on "The Rights of Parents, Teachers, and Pupils," to a fair audience in the Town Hall, in the course of which he took occasion to allude to the present Inspector for the County of Grenville as his first Inspector when a teacher in the County of Durham, and to whom he attributed in some measure his success in life by the kindly words of encouragement which he had given him twenty years ago; and whom therefore it was a great pleasure to him to meet again on the present occasion. We may add that in the course of the proceedings the claims of the educational periodicals were well attended to, and at the close a vote of thanks to Mr. Scott, moved by Rev. Mr. Blair, seconded by Mr. Craig, of Kemptville, was passed with acclamation.—Condensed from *Leeds and Grenville Independent*.