

## OUR BOOK SHELF

*On the Healthy Manufacture of Bread. A Memoir on the System of Dr. Dauglish.* By Benjamin Ward Richardson, M.D., F.R.S. (London: Baillière, Tindall, and Cox, 1884.)

THIS pamphlet is another of Dr. Richardson's labours in the cause of public health. It deals mainly, as the title implies, with healthy bread, and especially with the system of the late Dr. Dauglish of Malvern for baking what is now generally known as aerated bread. The advantages of the aerated process are stated by the author to be that the destructive influence of fermentation is prevented. There is no chemical decomposition of the flour whatever, and therefore no loss of material, while the rising of the dough is just as effectively carried out. The aerated bread contains, therefore, all the gluten and all the albuminous food of the wheat, out of which the living tissues are constructed, as well as the food which ministers to the animal warmth and vital activity. Moreover, much labour to the baker is spared, and the kneading by hand is wholly dispensed with—a matter of some consideration to delicate or fastidious persons. The gradual steps by which the process has been worked out, from the incubation of the idea in the brain of Dr. Dauglish to the modern aerated process of baking are fully traced by Dr. Richardson, who describes also the different effects of fermentation and aeration on the different qualities of flour, the economic and sanitary advantages of the new system to the workmen (by no means the least important part of the subject, as those who recollect Mr. Lakeman's report on the London bakeries, and who read Chapter IX. of this little work, will acknowledge), and the public advantages of the aerated bread in relation to health. An appendix contains a brief memoir of Dr. Dauglish.

*Proceedings of the Edinburgh Mathematical Society.* Second Session, 1883-84.

OUR readers have seen from time to time in our "Society" Notices the titles of papers read before this young but from the outset vigorous body, and must have often wished for a more intimate acquaintance with their contents (as the odoriferous steam issuing from the cookshop tempts the hungry "Arab" to enter and feed). We are glad to find, from the volume before us, that the Society is in a position to print its *Proceedings*, for we now know how interesting the papers are. They are not, like some other papers nearer home, *caviare* to the general, but they deal with matters which come home to every mathematical teacher. Mr. Mackay writes on the circles associated with the triangle, viewed from their centres of similitude; Mr. Muir, on the condensation of a special continuant; Dr. Macfarlane, on voting; Prof. Chrystal, on an application of matrices to spherical geometry, on a problem in partition of numbers, &c. Mr. Allardice furnishes some useful notes on spherical geometry and trigonometry; Mr. Browning, some illustrations of harmonic section; Mr. Barclay, notes on the teaching of elementary geometry (abstract only), and Mr. Traill, proofs of the theorems as far as "Euclid" i. 32, from first principles. Other papers are: a good concise account of Pascal's "Essais pour les Coniques" by Mr. Macdonald; the hypothesis of Le Bel and Van't Hoff, by Prof. Crum Brown; on the representation of the physical properties of substances by means of surfaces, by Mr. Peddie; and a joint account of the problem "La Tour d'Hanoi" (one of displacements), by Messrs. Allardice and Fraser. With these *Proceedings* are bound up Prof. Tait's introductory address on Listing's "Topologie," which, our readers will remember, has been published in the *Philosophical Magazine* (January 1884, pp. 30-46, with plates), and Mr. Muir's Presidential Address entitled "The Promotion of Research; with Special

Reference to the Present State of the Scottish Universities and Secondary Schools" (delivered February 8, 1884).

*Elementary Text-Book of Trigonometry.* By R. H. Pinkerton, B.A. (London: Blackie and Son, 1884.)

THIS elementary text-book of 176 pages contains all the essentials for obtaining a knowledge of trigonometry proper. It might be used either by those who desire merely a thorough grounding in the elements, or, as a first book, by those who intend to take a full analytical course. The arrangement is good, the text well written, and the examples, worked and unworked, are numerous and judiciously chosen. The introductory chapter on the measurement of angles is particularly commendable. We should prefer, however, not to write " $\pi/3$  radians" but " $\pi/3$  radian," reading it "*pi*-thirds of a radian." It may be suggested also to a writer who has the courage to introduce reforms, whether the time has not come for dispensing with the so-called *tablogsines*, *tablogcosines*, &c., and using only *logsines*, *logcosines*, &c. *Tabular* log functions are, according to our experience, well-meant aids which only hinder.

## LETTERS TO THE EDITOR

- [The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.]
- [The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to insure the appearance even of communications containing interesting and novel facts.]

## Iridescent Clouds

ON Thursday evening, December 11, about fifteen minutes after sunset, in the south-west direction as seen from the Royal Observatory here, were two rather large clouds about  $10^\circ$  or  $12^\circ$  high, and below them several much smaller ones, all of them of the most brilliantly iridescent colours and nothing but bright colour, of a kind I do not remember to have seen before, though they were not improbably like some described by several of NATURE'S correspondents last year.

The principal cloud, some  $5^\circ$  or  $6^\circ$  long and  $2^\circ$  or  $3^\circ$  across, exhibited a diagonal band of glowing green, passing through blue into exquisite violet on either side, while it was fringed nearly all round by dull red.

The second largest cloud, a little below and rather to the eastward of the first, exhibited all the same colours in similar diagonal bands, but unconformably with the places of the bands of the first produced down to it; though both may have had their bands at right angles to a ray from the sun long since set, but directed on their centres. The sky behind them and all around was singularly dark and sombre, so that these iridescent clouds, in the brightness and richness of their colouring, reminded one more of mother-of-pearl inlaid in a black tea-tray than any ordinary sunset sky.

The smaller clouds of the same kind lower down gradually lost the central green band and passed into yellow and orange, but were still phenomenally bright specks of luminous material on the dark general background. All this towards the south-west; while west and north-west the sky was nearly clear, and exhibited, in a sunset-illuminated sky "proper," a fairly fine but quite ordinary set of thin cirro-stratus rolls of cloud, warmly coloured on one side and cold-gray shaded on the other, like any corporeal body in the same exposure.

Lower down still on the horizon was a heavy cumulo-stratus cloud, which the west wind presently brought up to eclipse the green and blue iridescent clouds, proving that they were higher than it, though not so high as the dark cirrus haze to the south-west that had served so well to set forth their brilliant and unusual colouring.

Edinburgh, December 13

C. PIAZZI-SMYTH

A STRIKING phenomena, apparently a new phase of the cloud-glows, was widely witnessed here on the 13th, and I myself noticed it, though on a much less scale, and in the north-