

sued by the wave-fronts. It will be found by those who care thus to apply Professor Airy's results, that the following estimates by Professor Hochstetter are approximately correct.

He makes the mean depth—

	Fathoms.
Between Arica and Valdivia (1)	1,190
the Sandwich Isles (3)	2,565
Opapa (6)	1,933
the Chatham Isles (8)	1,912
Lyttelton (10)	1,473
Newcastle (Aust.) (11)	1,501

These results are the more valuable, because the Pacific Ocean has not been so carefully sounded as the Atlantic has. And though the progress of the tidal wave has long afforded similar evidence, yet a certain amount of doubt necessarily rests over conclusions drawn from the progress of a wave which is acted upon throughout its voyage across the Pacific by the attractions which gave it birth.

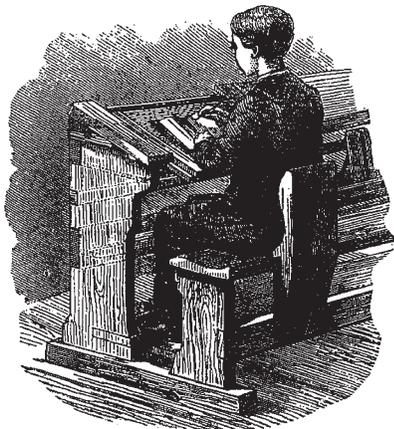
We may add, in conclusion, that on December 23, 1854, a wave traversed the Pacific from Japan to San Francisco and Diego, or from (4) to the neighbourhood of (2), whose progress, dealt with according to Professor Airy's numbers, showed the mean depth of the sea between Japan and San Francisco to be 2,149 fathoms, and between Japan and Diego 2,034 fathoms. These results agree fairly with those which have been deduced by Professor von Hochstetter.

R. A. PROCTOR

A NEW FORM FOR SCHOOLS

AT the first blush this may seem a trivial subject, but when we consider the immense floating multitude of children who frequent schools, spending at least some 6,000 hours on forms during the time that they are at school, and that their health may be injuriously affected by the use of unsuitable ones, the importance of the subject becomes evident.

Dr. E. H. Schildbach states, in the *Gartenlaube*, that amongst more than a thousand children whom he examined in several schools at Leipsic, he found only a few who did not show some lateral curvature or deviation of the spinal column, traceable to the use of improper forms.



The chief defect in the construction of these forms was the great space between the seat and the table. Seats without backs soon tire out even robust children; they cannot sit upright for several hours together, and after much shifting from side to side, they are constrained to obtain relief by sitting on the very edge of the bench, and resting their arms on the table before them. The position into which they are thus forced is anything but a salutary one. The back is curved, especially in its lower half; the thorax sinks between the shoulders, and chest and stomach

suffer a not inconsiderable pressure. To write in this position, one shoulder is raised much higher than the other, and the whole body is twisted unnaturally. With young and growing people the assumption of constrained positions, even for a few hours day by day, soon becomes habitual, and in many cases may lead to real deformity.

Our illustration represents the model form recommended by Dr. Schildbach, invented by Mr. E. Kunze, of Chemnitz, in Saxony, and will scarcely require a detailed description. It will be seen that the table forms an inclined plane without the usual level projection at its upper part. It is divided by cross bars into separate desks, and the boards which form the desks are movable and can be drawn out. A metal button with a lateral motion holds each board in its place, and also fixes it when drawn out. At the top in front are places for inkstands and writing materials, covered by the board when pushed home. Each seat has its separate back, of a shape best calculated to give proper support with the least possible pressure, while it allows the pupil to leave his place by stepping back over the seat without disturbing his neighbour. Underneath the table is a shelf for books, slates, &c., and beneath this there is a foot-board, an important provision against cold. The inexpensive character of this form and simplicity of its construction will be apparent to everyone.

THE NOVEMBER SHOOTING-STARS

THE earth is rapidly nearing the band of cosmical bodies to which the November star-showers owe their occurrence. Whether we are to witness a display or not depends wholly on the nature of that portion of the band through which we are to pass this year. The portion which gave the great display of 1866 has now passed many millions of miles away on its course towards the orbit of the distant planet Uranus. Nearer to us, but still many millions of miles away, is the part which we traversed in 1867, when (in America) there was a short but brilliant display of meteors, which would have afforded a yet more striking exhibition but for the full moon which dimmed their splendour. In 1868 meteors were seen in every part of the earth, and even, in America, on two successive nights. It is clear, therefore, that the portion of the band then traversed was very much wider than the part through which the earth had passed in the two former years. But even the part traversed in 1868 is more than five hundred millions of miles away from us now; and it is difficult indeed to say what may be the character of the portion we are approaching. Most probably it is even wider than the part we passed through in 1868; in which case we are sure (if the weather be but fine) to see a display of the November shooting-stars, though the same process of wide-spreading would of course tend to make the display so much the less brilliant.

It must be remembered that it will be absolutely useless to look for the meteors much before midnight of November 12—13 and of November 13—14. England does not come round to the exposed hemisphere of the earth—that is, to the hemisphere which is bearing directly through the meteor-band—much before ten o'clock in the evening; and she does not turn her full face, so to speak, towards the meteors before midnight. From that time until ten in the morning the rain of meteors is directed upon England without intermission, though no sign of the falling stars can be noticed after sunrise.

Our neighbours across the Channel propose to send observers to the shores of the Mediterranean, there to watch the meteors under more favourable circumstances than in more northern latitudes. Although we already know the principal conditions under which the meteors move, yet all observations directed to the determination of the size, colour, and constitution of these interesting bodies, will be well worth the making. The comet-nucleus