east, on the 11th. About 3.30 p.m. the upper edge of a dark, very lofty haze cloud, stretching almost straight from alt. 15° in the south-south-west, to about alt. 20° in the north-west, was fringed with prismatic colours, in parts thrice repeated, separating the dark haze cloud from a bright white haze, like that often seen of late near the sun, which itself was nearly setting. The luminous haze was widest, about 5°, above the sun, and was also, but far more faintly fringed, with a hazy blue sky above. It lasted until 4.20, but at 4.10 the dull cloud was a deep violet, and the bright haze a steel blue. They both seemed to disappear in the dusk, but the bright glow reappeared about 4.40 p.m.

On both occasions the phenomenon lasted long after sunset, and the cloud was quite distinct from the feathery cirri on which, if near the sun, one so often sees prismatic effects. On the 11th the two small oblong clouds affected had the colours in regular bands, in one round a dark, in the other round a bright centre, reminding one of Newton's rings.

J. EDMUND CLARK

York, December 15

The "New" Volcanic Island off Iceland

KNOWING the interest which, from their association with the later years of the Gare-fowl's existence, I have long taken in the islets lying off the south-west point of Iceland, Prof. Lütken has most kindly sent me a copy of the Copenhagen newspaper *Dagbladet* for the 7th of this month, containing an article by Capt. C. Normann of the Danish Royal Navy, in command of the ship *Fylla*, during her recent scientific voyage to Greenland, a distinguished officer and an eminent authority in Arctic matters. The article is long—too long for my powers of translation—but, with the friendly help of a Danish young gentleman of this University, I have mastered it, and find it exceedingly entertaining. It treats of the island which, as already announced in these columns (vol. xxxi. p. 37) and elsewhere, is said to have been lately thrust up, as other islands have before been known to be upthrust (at least temporarily) in that volcanic neighbourhood. According to the statement of Mr. Consul Paterson (*loc. cit.*) it is said to have been first observed by the lighthouse-keeper at Reykjanes on July 29; and it would seem that news of its apparition speedily reached Reykjavik; but unfortunately, says Capt. Normann, there was then no ship there available to make search for it. Rather less than a month later, however, the *Dupleix* and *Romanche*, of the French navy, arrived at that port, and the commander of the former, animated with the laudable desire to determine the position of the new island, and if possible to effect a landing upon it, resolved to do so in the course of his homeward voyage, and, with that intent, set out after a short delay. To the surprise of all at Reykjavik, he, as he subsequently informed the French Consul there, could find no trace of the object of his search on August 24. On the departure of the *Dupleix*, however, the commander of the *Romanche* dispatched two of his officers, equipped with proper instruments, by land to Reykjanes, thence to take the bearings of the new island. On August 26 they undoubtedly saw an island corresponding in position with what they expected to see, and reported accordingly to Reykjavik, where Capt. Normann's *Fylla* had arrived on the 25th, on her homeward voyage. The Danish commander, equally enthusiastic in the cause of scientific discovery, accordingly left Reykjavik early on the morning of the 27th, and soon after mid-day his ship was off Reykjanes, whence he pursued a course along the northern side of the bank from which the Fowlskerries emerge, seeing nothing of the new island, it is true, but that time the weather was thick. However, he passed cautiously (as well became a navigator in water liable to volcanic upthrusts) along the whole range, and even beyond the furthest of the emerged skerries—the Geirfugladrángur or Grenadeerhuen, when it began to grow dark, and also to blow. Next morning he turned back, running still along the northern side of the bank. It was clear and beautiful weather, and the rock just named, as well as Eldey or Melsækken, the innermost of the range, stood out in bright sunshine. Breakers marked the position of the old Geirfuglaskér, which sank beneath the waves in 1830, and the neighbouring coast of Iceland, as well as the inland fells, was plainly visible, but nothing in the shape of a "new" island was to be seen. So he came back to about midway between the Meal-sack and Reykjanes—the lead giving a depth of eighty fathoms of water. Thence, thinking that after all there might be some mistake in the reported position of the island, he put his ship's head about,

and ran along the southern side of the bank. But again was he disappointed, for no new island met the anxious gaze of all on board.

It remains to be said that a day or two later the *Romanche* came to the same spot, but alas, nothing new was to be found—not even a pumice-stone by which, as Capt. Normann remarks, all decent volcanic islands are expected to indicate their position, even when submerged. Still, the form of the "new" island went on gratifying the vision of the lighthouse-keeper at Reykjanes; and, as Mr. Paterson has told us (*loc. cit.*) it was seen by him through a telescope on September 9. I do not for a moment doubt that both he and previously the officers of the *Romanche* saw what was pointed out to them as the "new" island; but, from all that has been said before, and from my own knowledge of the locality, gained during a two months' stay at Kykjuvogr and the neighbourhood in 1858, neither do I doubt that Capt. Normann is perfectly right in asserting that the supposed "new" island is a very old friend of mine—the Geirfugladrángur or Grenadeerhuen before mentioned—the outermost of the emerged Fowlskerries, and our best thanks should be given to that gallant and scientific officer for dispelling the mystery.

ALFRED NEWTON

December 14

Overpressure in Schools

I HAVE carefully read Dr. Gladstone's article on over-pressure. Over-pressure is due more to the action of inspectors and teachers than to the requirements of the Code; e.g. a teacher in my district has a first class in an infant school, the children being all about six years of age. Owing to the unusual brightness of the children and their regular attendance, the teacher has had no difficulty in training her class in the three R's for first standard work, which, under ordinary circumstances, they could not do until they were a year older and in a higher class. What is the result? An inspector visits that school, finds the children can do much more than is required by the Code, and, without reflecting *how* this has been accomplished, he gives a good report for that class. The following week he visits another school in the same neighbourhood and examines a similar class; these children, he finds, are not so far advanced as those examined the previous week, and therefore he makes a less favourable report, thinking that the teaching-powers are not so good, although the children have really been quite as well taught, and are fully up to the requirements of the Code. When the report comes to the latter school, the teacher cannot understand how it is that the class has not gained the report it deserved, until by and by she hears indirectly what has been accomplished at the school previously examined. Then she says, "If they can do it at that school, we can do it here." Hence *over-pressure*. If inspectors did not examine beyond the Code, teachers would not train children for a higher standard than the Code requires.

Dr. Gladstone says, "Teachers used to be paid partly from the Government grant, and thus had a pecuniary incentive to press forward the feeble so as to insure a pass." That is quite true, but teachers will be found in the future to be quite as anxious as they were in the past as to the results of the examinations. They know quite well that now the salaries are fixed, and do not depend on results, it would be said directly that they did not take the same interest in their work as formerly if perchance the schools passed a less favourable examination, and on this point they are keenly sensitive.

Dr. Gladstone advocates "varied and appropriate occupations in infant schools." It is no doubt very monotonous for little children to be kept closely to the study of the three R's, but there are very few who really like the Kinder Garten as taught in our infant schools, unless it be the Kinder Garten games; it is *not* play, but hard work for such little ones to do. It is impossible for the work to be taught successfully when a teacher has too large a class under her control; in Belgium an assistant mistress has a class of fifty children with a pupil teacher to help her, and then no doubt Kinder Garten can really be carried out with beneficial results to the children, but in the London Board schools, where an assistant teacher has seventy or eighty or even more in her class *without help*, how is it possible to obtain good results? If Kinder Garten is to be taught with success there ought to be a Kinder Garten mistress appointed by the Board to teach it to the children, and I think there are very few teachers who would not agree in this. Of course it would entail extra expense, but it would be an expense more beneficial to the

children than some that are indulged in. These I believe to be the views of nearly all teachers as well as those of myself, who am but a

SCHOOL TEACHER

December 8

The Tokio Earthquake of October 15, 1884

AT 4h. 21m. 54s. a.m. the inhabitants of Tokio were awakened by a sudden and violent earthquake. In Yokohama, which lies about sixteen miles south-west by south from Tokio, the disturbance was noted at 4h. 21m. 38s., that is to say, sixteen seconds before it was felt in Tokio. The chief source of error in these time-records—if error exists—will probably be due to observers at different stations having noted time at different portions of the disturbance, the length of which, as determined by the sensations of those who made the records, was about one minute, but, as recorded by a seismograph, between five and six minutes. At the commencement of the disturbance four complete waves were described in three seconds, but at the end of the disturbance the motion became so slow that each wave occupied from two to three seconds. From a record taken by Mr. K. Sekiya, a gentleman whose especial duty it is to attend to the earthquake phenomena of this country, it would appear that the maximum range of motion may have reached 42 mm. The maximum acceleration per second per second was about 500 mm., that is to say, the intensity of the earthquake or its destructive power was similar to that which would be experienced by a building standing on a carriage which was suddenly caused to move with a velocity of about one foot and a half per second, or if, such a carriage having gradually acquired such a velocity, it had been suddenly arrested. The result of the earthquake was to overturn a few chimneys in Yokohama and to crack one or two in Tokio.

Our last severe earthquake was on February 22, 1880. On that occasion in Yokohama very many buildings lost their chimneys and were unroofed, whilst in Tokio the damage was chiefly confined to loosening tiles and shaking down plaster. Had our buildings in Japan been constructed like those in England, it is probable that this last shake would have caused about the same amount of damage as that which was so recently caused by the late disturbance in Essex. From the observations on direction, coupled with what has been said about time, it seems that the earthquake had its origin in Yedo Bay, at or about the same point as that which was determined for its severe predecessor.

It may here be remarked that nearly all the heavier earthquakes which are felt in Tokio and Yokohama practically have had a common centrum. They are not large earthquakes as measured by the area shaken, but they are severe because we are near to their origin.

The earthquake of 1880, according to a record furnished by one of Palmieri's instruments, had an intensity of 78°, whilst the recent earthquake, the actual intensity of which, as deduced by its destructive effect, was much less, is given as 95°.

These intensities measured in degrees really indicate the height to which a certain quantity of mercury in a bent tube was caused to wash—the height of the “wash” being measured by the turning of a pulley connected by a string to a small weight floating on the surface of the mercury. It would seem evident that the magnitude of the records obtained in this manner must among other things depend upon the duration of the earthquake, the period of its waves, and the depth of the mercury contained in the tube. For reasons such as these, records like those just given cannot be regarded as anything more than roughly approximative.

In connection with the remarks made on the amplitude it may be stated that the seismograph by which the record was taken was situated on soft soil in the flat portion of Tokio. This amplitude, had it been recorded on the hard ground of a hill, probably would not have exceeded 25 mm.

One of the most remarkable points connected with this disturbance were the changes in level as observed by the displacement of specially arranged pendulums, which took place before the shock, and again about six hours afterwards.

J. MILNE

Large Meteor

ONE of the largest meteors that I have seen for some years appeared at 7h. 15m. 15s. this evening. It began as a speck, north of Vega, at about 4° greater altitude than that star. The course was perpendicularly down, only disappearing by passing

below the horizon. It was 2° east of Vega on descending to the altitude of that star, and by that time had increased to fully a quarter the apparent size of the moon, and this size it maintained whilst above the horizon. The colour was an intense blue, and there was left a streak of orange-red elongated separate stars in its track, and this streak was about 1° in length, although the separate stars of which it consisted disappeared almost as rapidly as they were formed. The stars, like the meteor, increased in size and brilliancy from a mere point, and instantly vanished on attaining their maximum brightness. Each moved perpendicularly down for the length of about half a degree, and left a continuous momentary streak. None of these stars were seen within half a degree of the meteor, and their ignition was confined to the centre of the meteor's path. Their size was tolerably equal, being about that of a second-magnitude star. The speed of the meteor was unusually slow, it being visible for nearly six seconds. The shape was circular in front and cuneate behind (bluntly conical). Its brilliancy was great, considering the presence of a nearly full moon.

Shirenewton Hall, near Chepstow,

E. J. LOWE

December 4

The Cost of Anthropometric Measurements

ALLOW me to correct an absurd typographical blunder in the account of my anthropometric laboratory at the Healtheries, which appears in Mr. Ernest Hart's lecture at the Society of Arts. It originally occurred in the *Journal* of the Society of Arts, whence it was copied into your columns (p. 142) last week. The effect of the error to which I refer is to make the statement that the cost of measuring each person at the laboratory in seventeen different ways was 3*l.*, whereas it should have been 3*d.* The subsequent argument, based on the extreme cheapness of the process, becomes in consequence unintelligible. I write myself to make the correction, because the part of Mr. Ernest Hart's address which refers to the anthropometric laboratory was written for him, at his request, by myself. I regret I had not an opportunity of revising it in proof.

FRANCIS GALTON

The Northernmost Extremity of Europe

AS “a Norwegian” now fully admits that the pretended discovery of Capt. Størensen is no discovery at all, but an elementary fact well known and long known to Norwegian geographers, I need not discuss that question any further, but I must protest against his reference to Sönsberg's “Norge,” which is the joint production of some of the most eminent men in Norway. Sönsberg is the *editor* and *publisher*.

Amongst the writers who have co-operated to produce the national “Handbook” are the following:—Lieut.-Col. Broch, Chief of the Geographical Survey of Norway (he is the largest contributor, and the writer of the words I quoted), Prof. H. Mohn, Prof. T. Kjerulf, Prof. Rasch, Prof. L. K. Daa, Sørenskriver, H. Thoresen, J. B. Halvorsen (the well-known writer), Beaureauechef Kjer, and Secretary Mohn, Th. Bock (Royal plenipotentiary), J. N. Prahm, Capt. Scharffenberg, E. Mohn, Lieut. Flood, Capt. Overgaard (the Inspector of Forests), Hörbye, Lieut. Langeberg, and Mr. Langeberg, K. Lassen, Dr. Kahrs, Lieut. Solem, O. T. Olsen, Capt. Bang, Capt. Haffner, and Sørenskriver Nannestad.

All these names are given in the preface, and the contributors of each carefully specified. This was known to “a Norwegian” when he wrote his last letter, for he refers to that same preface, and yet asserts that Sönsberg “never claimed the least *geographical* authority for a faulty and crude guide to tourists” (his own italics). That preface is written for the express purpose of claiming such authority and thanking the authors. It makes special claim in a special paragraph of the *geographical* authority of the “head of the Geographical Survey,” Lieut.-Col. Broch, whose name, Sönsberg says, “offers a sufficient guarantee of correctness.”

The anonymous “Norwegian,” in further disparagement of the book, states that in this preface “the author himself says that for reasons explained it has many faults.” I will quote this very damaging confession. It is as follows:—“A few errors and misprints will be found here and there.” A list of them is given. After this the flippant misrepresentation of my pretensions in the last paragraph of the letter is not surprising, and demands no further notice.

I make this protest, knowing that NATURE is largely read by