position calculated to prompt them to oppose very strenuously a policy on which they see that their superior is set. Moreover, the advisers, who in the case before us are but two or three individuals, may be, as it was believed they were, prejudiced against the contrivance under consideration. It would be natural that the Minister should make a considerable deduction from the weight of their remonstrances on account of the departmental jealousy by which he might imagine them to be more or less tainted. Thus he is at sea, as deficient in the elements of stability as the *Captain* herself.

An obvious remedy for such a state of things might be to appoint as permanent heads to our great technical departments men thoroughly acquainted with their duties who could act on their own independent judgment. But this would subvert that perfect and inviolable edifice, the British Constitution. Far be it from a humble unit like myself to attempt such sacrilege!

What remains, then, as we cannot repress inventors and silence public clamour if we would, than to give the Minister stronger and more independent scientific support than that which was found in the case of the *Captain* too weak to prevent the most humiliating and disastrous blunder of modern times?

The suggestion I now venture to make is not new, nor do I make it now, on the pinch of the moment, for the first time. I brought it more than a year ago before a committee of the British Association, of which I was chairman. My proposal was, and is, that a powerful body of the most eminent men in every branch of science should be constituted a permanent paid Council for consultative, as distinguished from executive, purposes. Space does not admit of my detailing the constitution, mode of electing, and functions of this body. But, having long had the matter in my mind, I may say that I see no difficulty in securing the main conditions of varied and profound acquirements, and of due official relation to, yet thorough independence of, the Ministry and politics of the day. I need hardly say that such a consultative Council should comprise not only men distinguished in abstract science, but also men representing all branches of the sea and land forces, all technical departments, the public works, and the principal arts and manufactures of the country.

No mistake can be greater than to consider this proposal revolutionary, as some at first sight have done. It is in fact only a consolidation and systematisation of agencies actually in existence. The principle of supplying the country gentlemen who become Ministers of State with scientific advice through permanent secretaries and other subordinates, and through temporary committees entrusted with specific inquiries, has long been in force. It is certain that these individuals and bodies are often selected capriciously, and it is not saying too much to assert that the results of their labours would have been more valuable if their functions had been less narrow and their existence less precarious. The great domain of physical science cannot be parcelled out in neat little squares like a chess-board; its varied districts, as Nature has planned them, run into and mix with each other so intimately that in order to trace the boundaries of one, some knowledge at least of the adjoining tracts is necessary. Special committees, however well chosen, are seldom even numerically strong enough to comply with these conditions.

The Council now advocated purposes to substitute for innumerable, scattered, temporary, incomplete, hand-to-mouth expedients a permanent, properly selected organisation. In one case, the work is done somehow—we see to our cost how; in the other it will be done as well as human intelligence can do it; but in both cases the very same work will be done—namely, that of bearing really the burden of responsibility which Ministers only bear nominally. The principle will be the same under the existing and the proposed régime, but whereas it is now only recognised, it would then be realised. The details of the proposed reform, which are present to my own mind, would occupy more space than you could spare on one occasion from other important subjects. Nor is it possible in the brief limits of one letter to meet all those objections, now so well known to me, which start up directly this subject is mooted. Should, however, the remarks I have ventured to offer prove of sufficient interest to provoke discussion, I will on a future occasion solicit your permission to extend them.—I am, Sir, obediently yours,

Oct. 22

ALEX. STRANGE, Lieut.-Colonel

The Earliest Mention of the Aurora Borealis

The first appearance of the Aurora Borealis noticed in Mr. E. J. Lowe's "Natural Phenomena and Chronology of the Seasons" is that on Jan. 30, 1560. Other appearances are mentioned under

the years 1564, 1574, and 1575. No further record of it appears until Nov. 10, 1707, when it was seen in Ireland. Five more displays are noticed between this and the memorable one of Feb. 23, 1716, which, happening to take place on the day of Lord Derwentwater's execution, obtained for the phenomenon in the north of England the appellation of "Lord Derwentwater's Lights." On March 6 of the same year occurred another grand display, which is referred to in the chronologies of remarkable occurrences published in the almanacks of last century as "The Great Amazing Light in the North," continuing to be seen (more or less) at several times since, yearly. Previous displays in this century had probably not been visible in London. The phenomenon is thus described, with an attempt at explanation, in the *Flying Post* of March 8:—

"Last Tuesday night, as soon as it was dark, a pale sort of a light broke out in the north-west part of our horizon, which looked like the dawn of day, or rather like the moon breaking through the clouds. It darted many streams towards all parts of the sky, which looked like smoke. It proceeded towards the S.E., and continued by several intervals till midnight, when it totally disappeared. Some ignorant people, whose ideas are on such occasions stronger than their senses, fancied they saw armies engaged, giants with flaming swords, fiery comets, dragons, and the like dreadful figures; and others fancied they heard the report of fire-arms, and smelt powder; whereas there was nothing but what may easily be accounted for from natural causes, the sun having been hot for two days past, and particularly that afternoon, by which vapours were exhaled both from the earth and water, and the sulphurous particles mixed with them taking fire might occasion that light, and some coruscations, as is very common over marshy and fenny places in spring and summer nights."

The writer goes on to observe that "the disaffected party have worked this up to a prodigy, and interpret it to favour their cause," which accounts for a very obvious design to write the phenomenon down. Another display, not in Mr. Lowe's list, was witnessed at Leominster, on Feb. 21, 1718, as appears by a letter in the *Weekly Journal* of March 1. The streamers are there compared to the tail of the great comet of 1681.

London, Nov. 7

R. G.

THE fallacy of trusting for scientific information to any other than a recognised scientific source, cannot be better illustrated than by Mr. Pocklington's letter in your issue of Nov. 3. He there seems to think that the statements of the editor of a volume of popular poems on a matter of science are worthy of notice, and therefore thinks it worth while to inquire whether or not it is true that no aurora borealis ever appeared before 1715. The absurdity of such a rash statement is so apparent that it seems almost superfluous to show it. In 1754 a book was published by M. de Mairan, entitled, "Traité Physique et Historique de l'Aurore Boréale," in which he collects from all the writers, ancient and modern up to that date, accounts of all the Aurora Boreales which had been seen. Their total number amounts to 1,441 between the years A.D. 583 and 1751.

These are divided as follows: From A.D. 583 to 1354, 26 were recorded; 1354 to 1560, 34; 1560 to 1592, 69; 1592 to 1633, 70; 1633 to 1684, 34; 1684 to 1721, 219; 1721 to 1745, 961; 1745 to 1751, 28. Of these, 972 occurred in the winter half year, and 469 in the summer half year, the greatest numbers occurring in March and October. Since that date the two most remarkable displays have been those of the 23rd of October, 1804, and the 24th of October, 1847. An account of the latter aurora was published at Cambridge in the same year, giving twelve large coloured lithographic views of the brilliant display which are, without doubt, the best views ever given of any Aurora.

J. P. EARWAKER

Merton College, Oxford, Nov. 5

THE quotation given by C. Pocklington in your last issue as the words of the Editor of Routledge's edition of Collins's Poems, is the very note given by Dr. Langhorne in the "Poetical Works of William Collins," published in the year 1808, in a small book entitled "The Laurel," and as it has not been reprinted word for word its sense is somewhat obscured. In the original it runs thus:—

"By 'Young Aurora' Collins undoubtedly meant the first appearance of the Northern Lights, which happened about the

year 1715, at least it is *most* highly probable, from *this* peculiar circumstance, that no ancient writer *whatever* has taken any notice of them, nor even any *one* modern, previous to the above period."

The words restored are those italicised. The passage, as it came from Dr. Langhorne, is excusable for the knowledge displayed, but cut up as it is by the *modern* editor, shows great lack of it; and more than this, the honesty is not what every one would admire. Both, however, are incorrect. Dr. Halley, in the Phil. Trans., No. 347, page 406, gives a history of auroral observations, and for the information of "C. P." I have extracted a few particulars showing that the "northern lights have been observed and recorded long before 1715.

The first account, says Dr. Halley, recorded in English annals is that of the appearance which was noticed January 30, 1560, and called "Burning Spears," by the author of a book entitled "A Description of Meteors," by W. F., D.D. London: 1654. The next of a like kind was the appearance recorded by Stow, which occurred on October 7, 1564.

In 1574, Camden and Stow inform us, an Aurora Borealis was seen for *two* successive nights, viz., the 14th and 15th of November, with appearances similar to those observed in 1716, and which are not commonly noticed. The same phenomenon was twice seen in Brabant in 1575, viz., on the 13th of February and the 28th of September, and the circumstances attending it were described by Cornelius Gemma, who compares them to spears, fortified cities, and armies fighting in the air. In the year 1580, M. Mastline observed these *phasmata*, as he calls them, at Baknang, in the county of Wurtemberg, in Germany, no less than seven times in the space of twelve months; and again at several different times in 1581. On September 2, 1621, the same phenomenon was seen all over France; and it was particularly described by Gassendus in his "Physics," who gave it the name of "Aurora Borealis." Another was seen all over Germany in November 1623, and was described by Kepler. Since that time, for more than eighty years we have no account of any such phenomenon either at home or abroad. In 1707 Mr. Neve observed one of small continuance in Ireland. In the years 1707 and 1708 this sort of light had been seen no less than *five* times.

There is not the least doubt in my mind that the commentator of Collins must have been wholly ignorant of the literature of scientific records, else he would never have said what he did on the lines in question.

In the Orkneys the Northern Lights are known by the name of the "merry dancers." And it is not at all surprising among an unphilosophical people, that this, one of the grandest phenomena in nature, should be the subject on which the imagination fondly dwells.

The various conflicts of Odin may probably have been suggested by the dancing and flickerings of these Lights.

In the "Prosa Edda" there is a direct allusion to the Aurora Borealis; at least, the translation given in Mallett's "Northern Antiquities," edited by J. A. Blackwell (1847), page 404. It says:—"From his skul," continued Thridi, "they formed the Heavens, which they placed over the earth, and set a dwarf at the corner of each of the four quarters. These dwarfs are called East, West, North, and South. They afterwards took the wandering sparks and red hot flakes that had been cast out of Muspellheim, and placed them in the Heavens, both above and below, to give light unto the world, and assigned to every *other errant coruscation* a prescribed locality and motion."

If by "errant coruscation" he meant all the meteoric phenomena including the Northern Lights, then we have in this "Edda" the most ancient record of this observation.

JOHN JEREMIAH

43, Red Lion Street, Clerkenwell, Nov. 4

Hereditary Deformities

THE following instance of hereditary deformity is taken from Mr. L. W. Dillwyn's "Materials for a Fauna and Flora of Swansea and the Neighbourhood" (Swansea, 1848), a privately printed and therefore little known book. It will be seen that the evidence respecting the origin of the malformation is not conclusive: "In 1804 there was in the Neath Valley a remarkable breed of a sort of sheep-dog, with nothing more than a flat depression, about half an inch broad, between the nostrils, and was said to have originated in a bitch which had her nose longitudinally cleft by some accident. The breed retained this deformity for several years, but I believe it is now extinct."

The same book contains the following very remarkable illustration of the dispersion of species by means of oceanic currents: "On the sandy sea-shore, opposite the race-course on Crumlyn Burrows, and more than a mile from any sort of house or garden, Mr. L. L. Dillwyn, in 1839, found a thriving young plant of *Yucca gloriosa*, and it had all the appearance of having risen from a seed which the tide had cast there. Notwithstanding its exposed situation, and the looseness of the soil, this native of Carolina was not materially injured by the unusually severe winter of 1840-1, and Mr. Moggridge informs me that for two or three years it continued to thrive, till it was destroyed by a heap of shingle, which a violent storm and high tide threw over it."

R. G.

London, Nov. 7

Fertilisation of Plants

WITH candle in hand I have pored through all that you have printed of the speeches delivered by the members of the British Association at Liverpool, till I made a full stop at page 482, where I found "Observations on Protandry and Protogyny in British Plants, by A. W. Bennett, F.L.S.—The arrangement of the reproductive organs in hermaphrodite plants, the presence in the same flower of both pistil and stamens, suggested to the minds of the older botanists no other idea than that of self-fertilisation. It is, however, now generally admitted that even in hermaphrodite flowers, cross-fertilisation is the rule, self-fertilisation the exception. Two sets of facts have been especially observed—in particular by Darwin in this country, Hildebrand in Germany, and Delpino in Italy—to favour cross-fertilisation in hermaphrodite flowers, the phenomena of dimorphism and trimorphism, and the special arrangements which render it easier for the pollen to be brushed off by insects visiting the flowers than to fall on its own stigma." I cannot understand what this special arrangement which renders it easier for the pollen to be brushed off by insects visiting the flowers, can mean, when applied to the flowers of our forced peaches, French beans, &c., in blossom during the dark months of December, January, February, and March, when there is no insect on the wing.

As I do not keep bees in my garden, and there are none kept within a mile of it, and if there should a swarm of bees take up an abode near us, I destroy it, my peaches blossom and set their fruit without the assistance of the bee or any other insect. It is the sun that sets the blossoms, so to speak, and consequently we make the best use of every gleam of sunshine that by chance may visit the earth during the blooming time of our forced "things."

From this fact it must be evident that the Creator did not leave the all-important functions of the fertilisation of flowers to the insects which are simply in search of food, though it amuses our great thinking and closely observing philosophers to try to assure us plodding practicals of our sheer ignorance in the *modus operandi* of the fertilisation of hermaphrodite flowers.

That insects disperse the pollen of flowers there cannot be a doubt. Neither is there a doubt that hermaphrodite flowers fertilise their own pistils during the dark months of winter, without the presence of plundering insects. An industrious morphologist might find much employment in an early forced peach-house, in flower, say in January, on which the sun may not have gleamed since the first blossom opened. A PEACH-GROWER

[Our correspondent should read the article in NATURE, No. 1, by Mr. Bennett, "On the Fertilisation of Winter Flowering Plants," which he will find to be in accordance with his own views.—Ed.]

Chip Hats

IN the last number of NATURE it is stated that palm-leaf was formerly imported to St. Alban's for the purpose of making *chip* hats. Allow me to state that the trade has never ceased. Large quantities of palm-leaf are imported under the name of "Brazilian grass," and many persons are constantly employed in St. Alban's and the villages around in plaiting these hats, principally for exportation. They are called *grass* hats.

Kew, Nov. 16

F. H. HOOKER

The Electric Telegraph and Earthquakes

THE use of the electric telegraph for recording earthquakes is not so new as the *Echo* (quoted in your last number, p. 35) supposes. Dr. Hector, Director of the Geological Survey, has, ever since the last great convulsion, systematically