

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 tinctured. 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 Auroras 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