which is shortly due for a refit may be out of service for longer than has been allowed for. It therefore seems appropriate to ask some old questions about the future of Britain's only full time strategic deterrent—and not simply the question whether it is possible to keep a fleet as small as four at sea for sufficiently long to serve a useful purpose. Another cross-roads is fast approaching: the question of whether Britain can afford to fit—or even should fit—multiple warheads such as the American Poseidons. A few figures are worth bearing in mind. The United States fleet consists of forty-one Polaris submarines at present carrying sixteen missiles, each in the megaton range, and it is the declared intention of the American Government to convert thirty-one of the submarines to Poseidons, which means that there will be several thousand separately targetable warheads at the disposition of the US Navy.

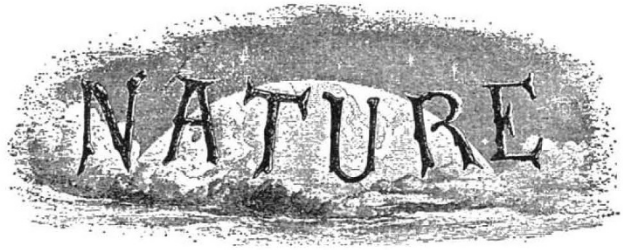
Does a British Poseidon make sense alongside all this? This is really a political question and, although Mr Harold Wilson, the Prime Minister, has indicated that he considered in 1964 that the Polaris programme was too far advanced for Britain to withdraw, he can make no claims of inevitability about a Poseidon decision. He and Mr Denis Healey, the Minister of Defence, have been in ultimate control of British weapons development for long enough now to be masters of the situation. On the face of it, there seems no reason why Britain should not bow out of the nuclear division of the arms race at this stage. If the deterrent were meant to be entirely independent of Britain's NATO allies, there seems little logic in responding in this way to a threat which does not seem to have been posed. The strategic nuclear equations are strongly dependent on land deployment and land security—Britain possesses neither land missile bases nor any anti-ballistic missile defence, and expansion of Polaris missile capability even fivefold would pose no threat to an enemy which had decided to eliminate Britain's population centres. Indeed, one might reasonably argue that additions to British strategic strength in the form of multiple warheads would be orthogonal to the direction in which Britain's main strategic military interests should lie, namely in areal defence.

But is the British deterrent meant to be integrated into the NATO command? Undoubtedly the United States would prefer British resources to be put to conventional uses than devoted to sophisticating a small expensive arsenal. Of course, what the United States prefers is not necessarily the best thing for NATO, but there is a lot in the argument that the fewer participants in the strategic theatre the better. It is abundantly clear that nuclear capability no longer confers a status to guarantee admission to the diplomatic top table.

Presumably Mr Wilson is only too aware of all this—Mr Edward Heath, the Leader of the Opposition, probably has not very divergent views of Britain's nuclear future, although if he were returned at the next election he might make somewhat different noises in public. What would a withdrawal from further development of strategic weapons and their delivery systems mean? The impact on the British aerospace industry would be hard to assess, for it is difficult to tell how deeply the industry has been involved in the development of propulsion and guidance for a new generation of weapons. The impact on some government establishments, notably the Atomic Weapons Research Establishment at Aldermaston, could, however, be severe. It is only reasonable to assume that the ban on nuclear weapons tests which the Labour Government appears to have imposed shortly after taking office will already have altered the character of Aldermaston considerably.

Should this process of attrition continue? Attractive as it may be to continue slimming Aldermaston, a much more valuable role can be performed in the future by an establishment which is at the forefront of research if not of development. It is not necessary to be a superpower to be in possession of the facts which lead to major policy decisions, and without hankering after sitting at the top table it is still possible to be a potent influence there. To be sure, the right balance at AWRE to keep Britain in a powerful and knowledgeable position without aiming for unattain-

100 Years Ago



Use of the word "Correlation"

I OBSERVE in your last number you adopt the phrase of Mr. Barrett, "Correlation of colour and music." Will you and Mr. Barrett pardon a criticism on the application of the word "correlation?"

I believe I was the first who ever used the word at all as an English word, though the words "correlate," "correlative," &c., are to be found in Johnson. At all events, I stretched the meaning, and apologised for so doing in my essay on the "Correlation of Physical Forces." Wherever the word "correlative" was used to express a mutual and inseparable relation of two ideas, such as parent and offspring, height and depth, &c., I ventured, for want of a better term, to apply it, and the new substantive "correlation" to reciprocal relations of phenomena, such as heat and electricity, electricity and magnetism, &c.—not then (1842) supposed, except by me, to be relations of necessity, and not even now supposed to be inseparable in idea.

The application of the word has latterly been much extended, and we hear of correlation of growth, correlation of diseases, correlation of sciences, &c. I rather regret this; there is nothing of greater importance, especially for works on physical science, than accuracy, as far as may be, in the use of words: perfect accuracy is impossible.

Mr. Barrett has, I think, extended the import of the word beyond reasonable limits. There is no correlation between colour and music, further than there is a correlation between anything and everything. The word "analogy," used also by Mr. Barrett, is, in my humble judgment, far more accurate as applied to the classes of phenomena he treats of. I hope he will excuse a "parent" when complaining of ill-treatment to his "offspring," although the offspring may have had a little congenital deformity.

January 22 W. R. GROVE

From a letter to the Editor, Nature, 1, 335, *January* 27, 1870. *Grove was the first to demonstrate the electrolytic decomposition of water.*