power are all described briefly but adequately. The hydrogen bomb receives rather scanty treatment. So many technical terms are used throughout the article that one would have thought the term 'thermonuclear reaction' would have also been mentioned. Radioisotopes and their numerous uses are not mentioned. The article will be most useful to those who are fairly well acquainted with basic physics and chemistry, and will serve admirably as basic notes for lecturers on the subject of atomic energy. Quotations from recent utterances of the Pope on the terror of atomic destruction and on the wonderful results of the applications of atomic energy in the industrial, biological and medical spheres preface and conclude the article, respectively.

Production of Single Crystals of Germanium

The zone-melting technique employed for the production of metals of very high purity has been modified by D. C. Bennett and B. Sawyer (*Bell System Tech. J.*, 637 ; May 1956) for the production of single crystals of germanium of exceptional crystalline perfection and uniformity of composition. The apparatus as described can produce crystals up to 6 in. long in which the average variation of resistivity along the length can be controlled to $\pm$ 7 per cent, while the variation over the cross-section can be as low as $\pm$ 3 per cent. The crystals contained no grain boundaries or twins, and the etch-pit densities, used as a measure of the number of dislocations, average about 1,500/sq. cm., though much lower values than these have been obtained, the lowest as yet observed being 40 pits/sq. cm. The variation of composition as measured by the resistivity is principally due to variations of the volume of the liquid zone due to temperature fluctuations, variations in the rate of flow of inert gas and cracks in the unmelted charge. The temperature gradients at the melting and freezing surfaces are important, the former being 130 deg. C./cm. and the latter about 10 deg. C./cm. The rate of growth of the crystal—that is, the rate of traverse of the boat through the furnace—affects its quality, a rate of about an inch in three hours being reasonable where the best results are required.

National Museum of Canada : Report for 1953–54

The annual report for 1953–54 of the National Museum of Canada which has recently been published as Bulletin No. 136 of the Museum (pp. 122+16 plates. Ottawa : Queen's Printer, 1956 ; 1.50 dollars) prefaces an account of the general activities of the year with a restatement of its main functions. These are : "to collect and preserve Canadian anthropological and natural history material of scientific or economic interest ; to carry out studies in connection with this material ; and to provide and disseminate information regarding natural science and ethnology by means of exhibits, publications, lectures and photographs". The illustrated report fully justifies the claim of the Trustees that the Museum is carrying out the functions for which it was founded, for, in addition to the usual accounts of curatorial work, original papers by the staff on related subjects are published. A new venture was initiated when a bronze plaque was erected by the Museum at Hogsback, near Ottawa, to explain the geology of this interesting locality. This is the first attempt to mark a scientific site in Canada and could with advantage be followed in Great Britain.

Calendar Reform in India

The Calendar Reform Committee, which was set up some years ago by the Government of India, has reported on its work of examining the different calendars of India (pp. 280, published by the Council of Scientific and Industrial Research, Old Mill Road, New Delhi, 1955 ; n.p.). At the present moment, thirty calendars are in use in India, each of which differs from the others in various ways, including the methods of time reckoning. While these are the natural results of India's past political and cultural history, representing to some extent political divisions, now that India has attained independence uniformity in the calendar is desirable. The Gregorian calendar is followed by India, as it is in the greater part of the world ; but many countries have found that, in spite of its virtues, it has its defects, and the present report gives the results of the Committee's recommendations, in addition to a large amount of useful information on various astronomical matters. In the unified national calendar, it is proposed that the Śaka era should be used, the year 1954–55 corresponding to 1876 Śaka, and a year would consist of 365 days with the usual arrangements for leap-years. The first month of the year would be Caitra, which would contain 30 days, or 31 in leap-years, and Caitra 1 would correspond to March 22 in the Gregorian calendar, or March 21 in a leap-year. The months following Caitra are Vaisākha, Jyaistha, Asādha, Śrāvana, Bhādra, Asvina, Kārtika, Agrahāyana, Pausa, Māgha, Phālguna ; the first three would contain 31 days each, the next three in order 31, 31 and 30 days, and the next five 30 days each. The dates of the reformed Indian calendar would thus have a correspondence with the dates of the present Gregorian calendar, and, starting with Caitra, the months following in the order given above would correspond with April 21, May 22, June 22, July 23, August, 23, September 23, October 23, November 22, December 22, January 21 and February 20. In addition to recommendations for religious calendars, it is suggested that an "Indian Ephemeris and Nautical Almanac" should be compiled which, besides showing the positions of the heavenly bodies, should include the Indian calendar—both civil and religious—prepared according to the recommendations of the Committee.

The Night Sky in September

New moon occurs on Sept. 4d. 18h. 57m., U.T., and full moon on Sept. 20d. 03h. 19m. The following conjunctions with the Moon take place : Sept. 1d. 12h., Venus 1° N. ; Sept. 6d. 17h., Mercury 0·8° N. ; Sept. 10d. 07h., Saturn 2° N. ; Sept. 19d. 14h., Mars 11° S. In addition to these conjunctions with the Moon, Venus is in conjunction with Pollux on Sept. 2d. 15h., Venus being 9·5° S. Mercury is too close to the Sun for observation. Venus rises at 1h. 15m., 1h. 30m. and 2h. 00m. on September 1, 15 and 30 respectively, and is a bright object with magnitude varying between $-3{\cdot}9$ and $-3{\cdot}7$, the visible portion of its illuminated disk increasing from 0·503 to 0·641 ; during this time its distance from the Earth increases from 57 to 86 million miles. Mars rises at 19h. 40m., 18h. 35m. and 17h. 25m. at the beginning, middle and end of the month, respectively, the corresponding times of setting in the morning being 6h. 10m., 4h. 50m. and 3h. 35m. ; its stellar magnitude varies between $-2{\cdot}6$ and $-2{\cdot}3$ and its distance from the Earth is a minimum on September 7, being 35 million