will appear to grow fastest in those areas where the determinants of human behaviour are the weakest and least significant". These determinants are least effective where the identification of the self with the external world is weakest, that is, in relation to the heavenly bodies and other inanimate objects; hence the success of astronomy, physics and chemistry. The new interpretation has then spread to the biological sciences: anatomy, physiology, psychology and sociology, in that temporal order. Dr. White regards the latest science, culturology, as in a sense superior to all the others. Many sociologists and anthropologists, for example, Ralph Linton, Robert S. Lynd and Margaret Mead, agree that the study of culture is often neglected, and approve a present tendency to study personality in its cultural background or context. But Dr. White disapproves strongly of what he calls "the exponents of 'free will' in anthropology", yet when he writes "present day anthropology is both anti-evolutionist and anti-culturological" the reader may wonder what he means by free will, evolution and culturology.

Dr. White believes that culture traits react upon each other immediately and directly. He quotes the hoe as an example. It acts upon and influences other culture traits "such as division of labour between the sexes, customs of residence, food habits, religious beliefs and ceremonies and so on". But a hoe may act upon a clod, the hoer's foot or remain unused; and to-day fashions for or against certain tools or instruments are notoriously affected by propaganda and advertising. All these are examples of human interference. We are asked to treat cultural phenomena "as if they had a life of their own". But the instances the author quotes, where "the introduction of human organisms into a consideration of these problems is not only not necessary; it is irrelevant and confusing" can be claimed as examples of problems the solution of which is impossible if the effect of human beings is excluded. Even "studies of languages on a purely linguistic, i.e., non-biological level" are sadly incomplete if one ignores the living, speaking creature. Dr. White states his belief that culture has its own laws, but for this the present article offers little evidence.

## Commonwealth Fund Fellowships

THE Commonwealth Fund of New York, a philanthropic foundation existing since 1918 and supported by endowment from the late Mrs. Stephen V. Harkness and the late Mr. Edward S. Harkness, has established for British subjects a number of fellowships tenable in the United States. Not more than twenty ordinary fellowships will be offered in 1948. Candidates must be of British descent, graduates of recognized universities of the British Commonwealth, and be between the ages of twenty-three and thirty-five on September 1, 1948. Not more than five service fellowships will be available for candidates of British descent who hold Government appointments overseas in the British Commonwealth. Not more than three Home Civil Service fellowships will be offered for candidates holding appointments in the Home Civil Service. None of these fellowships is open to women. There is no fixed stipend; but it is estimated at a minimum of approximately 3,500 dollars for twelve months, and is intended to cover the full expenses of residence, study and travel in the United States during the year. All applications must be submitted on the prescribed form, and must be approved by the authorities of the college or university of which the candidate is, or has been, a member. They must reach the Secretary to the Committee, Richard H. Simpson, Commonwealth Fund Fellowships, 35 Portman Square, London, W.1, by February 1, 1948.

## Volcanic Activity in 1946

ACCORDING to *Earthquake Notes*, **18**, Nos. 1 and 2, September 1946, the first new volcanic activity of 1946 was on February 17 when a volcano on Niuafoou in the Tonga Islands erupted violently and the lava flow partly covered a village. In the same month, in Baluchistan, a volcano north of Karachi, India, began emitting mud, and 200 miles south of Yoksuka naval base, Japan, a volcanic island rose from the sea. On March 20 Mount Sakura-Jima in southern Japan blew boulders more than 1,000 ft. into the air and sent up a smoke column 3,000 ft. high. Lava flows doomed nearby villages. On May 11 Izalco volcano in El Salvador erupted after twelve years quiescence. Santiago volcano in Nicaragua began smoking in June. On September 25 Stromboli in Italy was again active. Continued activity was reported from Kluchenskayo volcano on the Kamchatka Peninsula, which erupted in December 1944, while in New Zealand, Mount Ruapeku continued to shower dust over a wide area after the outbreak in August 1945. Paricutin volcano was intermittently active during the year, but there was an overall subsidence. Volcanic ash, reported over the Aleutian Trench in 1945, was later found to be due to a spectacular eruption on Umnak Island, which blew steam and ash several thousand feet into the air.

## Chemical Composition of the Stars

A RECENT paper by Mr. F. Hoyle introduces some revolutionary conceptions regarding the internal constitution of the stars (*Mon. Not. Roy. Ast. Soc.*, **106**, 4; 1947). Until comparatively recently it was usually assumed that the stars contain about 30 per cent of hydrogen and 10 per cent of the heavy elements; but an accumulation of observational evidence during the last fifteen years indicates that this proportion of the heavy elements is much too high. Hoyle shows that the data are more consistent with the view that, at the time of condensation of the stars, 99 per cent, and probably more than this, must have been in the form of hydrogen, the remainder consisting of heavy elements. The mean molecular weight of a star at the time of condensation must have been about 0·5, and a subsequent increase in this could arise only by the conversion of hydrogen into helium by thermonuclear reactions. In the case of small stars like the sun, very little change in composition has taken place during their life-times, so that the sun would now consist almost entirely of hydrogen. This constitution differs so widely from that of the earth, which contains very little hydrogen, that it is impossible to accept the view (now somewhat discredited) that the earth and other planets once formed part of the sun. The high ratio of hydrogen to metals in interstellar matter, obtained in 1939 by Dunham, is, Hoyle points out, a powerful argument in favour of his supernova theory of the origin of the solar system, which was developed in *Mon. Not. Roy. Astro. Soc.*, **105**, 175 (1945), and of which a short account appeared in *Nature*, **157**, 881 (1946).

## The Night Sky in December

NEW moon occurs on Dec. 12d. 12h. 53m., U.T., and full moon on Dec. 27d. 20h. 27m. The following conjunctions with the moon take place: Dec. 3d.