ance; Copernicus himself said that he would be delighted if he could make his theory agree with observation within 10'. It is not true that Copernicus was able to break with an old belief "only because he had at his disposal a considerable amount of accumulated scientific thought and scientific data". The statement that with the astronomical instruments of to-day angles can be measured "within one hundredth of a second of the arc" shows a lack of appreciation of the errors of observation. It is not correct to state that Copernicus "was of the opinion that the solar system virtually exhausted the space of the Universe"; Copernicus asserted that the stars were at an immense distance, but left the question whether the world was infinite and without bounds for philosophers to discuss.

The account of the work of Tycho Brahe and Kepler is misleading. Kepler was able to prove that the orbits of the planets are elliptical because Tycho had not restricted his observations of the planets, as his predecessors had done, mainly to the times near opposition, but had observed them right round the heavens; this is not mentioned. The statement that Kepler "discovered through mere measurement also other laws of planetary motion, called after him 'the Kepler's laws'" gives a poor idea of Kepler's long and laborious investigations. It is not correct that to Copernicus and Kepler the stars "were tiny dots in the sphere of heavenly matter". Giordano Bruno was not the first person to assert that the firmament was infinite; this was stated by Thomas Digges, from whom Bruno probably adopted the conception. Galileo did not make the first serviceable telescope, and he did not see Venus as a sickle-like shape, but as a crescent. He did not designate the major satellites of Jupiter as the "medizeic planets". To state that he discovered that "all bodies fall equally fast" is inaccurate. The statement that "fate allotted to the English physicist Isaac Newton an outstanding role in the history of the natural sciences of the described period" is a poor tribute to the genius of Newton.

A few specimens of the translation will suffice to show its crudeness. "Electrical waves are advancing fields which should not be regarded as bound to a material medium. They are waves in which electricity continually alternates between positive and negative. Yet they are not dependent on the ups and downs of small material particles, but move quite independently through space. They thus have qualities found by the science of optics in the slow course of experimentation with light." "Such reflections were entertained with regard to ether and in connection with astronomical relations. As light traverses the world's space, ether must fill it like a great mass of water in which planets float like isles. Insofar as planets move around the sun, they must be characterised by a different state of motion from that of ether. Thus one comes to the assumption that the velocity of light, as measured on a planet like the Earth, must vary with direction, simply because ether is understood as a substratum of light waves and only with regard to it can the velocity of light receive its natural value". "What is maintained by Einstein with regard to light goes, therefore, for all electrical waves of which light is but a representative. But according to our knowledge of the internal structure of all substances, there are basically only two ways of transferring power from body to body; gravitation and the electrical wave. Every other manifestation of force is composed of them. If they both move

with the velocity of light, as Einstein contends, then a slowing up may occur within the atoms of the body, when the power runs in a zig-zag course; but it can never be accelerated. Einstein's law of the limit character of the light-velocity means thus nothing other than a formulation of the fact that light represents one original form of the transfer of action, the other representing an equal speed limit".

The quotations will suffice to show that the book cannot be recommended. H. SPENCER JONES.

LANGUAGE IN THE MAKING

The Gift of Tongues

By Prof. Margaret Schlauch. Pp. ix + 342. (London: George Allen and Unwin, Ltd., 1943.) 12s. 6d. net.

MARGARET SCHLAUCH is a professor of English at New York University and teaches Chaucer, medieval literature and language. In the "Gift of Tongues", however, she has directed attention to the study of linguistics for the layman. The matter is so varied in style and content that it is difficult to comment on the book as a whole. Generally, it is well written and reads easily; much of the reader's enjoyment comes from a liberal sprinkling of sly humour which never obtrudes. Among the many subjects dealt with by Prof. Schlauch are the early origins of language, the use of names in magic, the evolution of written language through pictographs, ideographs and hieroglyphs to fixed alphabets and the study of semantics.

The possibilities of basic English as an international language is discussed in a chapter dealing with the history of the English language. A section on grammar gives a brief outline of the principles of sentence construction in the Aryan family of languages and then proceeds to show that our own system is, after all, but one system, based largely on Latin. An interesting account of the emotive qualities of words leads on naturally to the use and need of linguistic knowledge in studying some modern poets like James Joyce, Gerard Manley Hopkins, Gertrude Stein, Hart Crane and others whose works are reputed to be 'difficult' because of their deliberate use of verbal distortions, puns, overtones and double shades of meaning. The work of modern poets in using words in their original meanings and free from the impediments which have obscured their original meanings is also considered.

Men of science, as well as Mrs. Malaprop and other *arrivistes* in language, would find much to interest them in the chapter concerned with the social aspects of language and its significance in class, superstition, and politics. In this connexion it is easy enough to agree with Prof. Schlauch that "linguists will gain and give most when they unite the traditional scrupulous regard for scientific method with vivid and realistic awareness of social milieu and its challenging problems. To do this they will have to receive help from, as well as give it to, other disciplines such as sociology and psychology", as well as her further remark that "no part of language study offers better occasion for scientific collaboration than the investigation of meanings against a social background".

The book is thoroughly annotated and contains a well-ordered and lengthy bibliography. The series of questions and illustrations at the end would be useful as diversion for the layman and exercise for the student.

T. H. HAWKINS.