

solution, now under way. The limits of the device are entirely dependent on the ratio of the as yet unknown elastic constants of the glomerulus, whose direct measurement is now being attacked.

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Science and the Bible

SCIENCE is not intended to be a forum for theological disputations. It is therefore most surprising and regrettable that valuable space was ceded to the comment by Cyrus N. Ray (SCIENCE, 113, 610 [1951]). To a physician and scientist like myself, who is acquainted with Hebrew philology, as well as classical literature, that diatribe reveals an imperfect and prejudiced acquaintance with the Book of Books. His citation from Rev. 7: 1 is but a repetition of a well-known classical Hebrew expression found in three passages of the Hebrew Bible; namely, Isa. 11: 12, Isa. 24: 16, and Ezek. 7: 2. In each case the Hebrew term *Kanaf* is employed (pl., *Kanfoth*), which etymologically denotes "wing or wings," and the expression *arba Kanfoth ha-aretz* refers not to the shape of the earth but to the four points or directions of the compass. By "four corners of the earth" is meant, as the Authorized Version correctly puts it, the "uttermost parts of the earth" or, as the Vulgate gives it, "four quarters of the earth" (Douay's translation).

The passage in Isa. 40: 22, so well quoted by Carl S. Wise (SCIENCE, 113, 128 [1951]), is the clearest and the absolutely unequivocal Hebrew reference to the shape of the earth. The Hebrew *Hug* means a circle and refers to the round contour of the earth. Some Hebrew scholars interpret that verse as referring not only to the spherical shape of our planet, but also to the earth's orbit. The clause in the same verse (Isa. 40: 22) that reads, "And her inhabitants are like grasshoppers," in Hebrew does not refer to the small size of man in the eyes of God, who is all-seeing and omniscient. On the contrary, it describes with exquisite aptness the psychology of *Homo sapiens* by comparing him to the grasshoppers of the Bible. The characteristics of these creatures are delineated in three passages. In Joel, chapter 1, they are described as voracious and noisy. In Eccles. 11: 5, they are depicted as frequently dominated by overwhelming sex drives (the Hebrew *hagab* denotes *libido*; compare Rashi's commentary). In Num. 13: 33 they reveal an exaggerated inferiority complex (compare Midrash on Shir Hashirim).

Voluminous concordances and extensive commen-

taries have been written on the works of Shakespeare, Dante, Goethe, and other great writers. So have numerous concordances and commentaries and lexicons been devoted to the Tenach, or Hebrew Bible. Shall we deny the same homage and study, even from the purely literary point of view, to the universally acclaimed poets, prophets, philosophers, and preachers of the Holy Writ? The answer given by those men of science who have had sufficient breadth of vision and initiative to master the humanities along with their store of scientific lore, those men who live a three-dimensional life instead of the flat, two-dimensional one of the specialist, is unequivocal.

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Far Vision Observations

Two discussions of the limits of unaided human vision of topographical features at a distance of 13 miles, by Hirsch and Weymouth, and by Olmsted and Olmsted recently appeared in SCIENCE (114, 19 [1951]). The writer doubts the contention of Hirsch and Weymouth that "a cliff less than one foot in height could be recognized as a change in contour at a distance of thirteen miles." My field experience indicates that no such visual acuity exists under natural conditions.

My office windows in the Mims Building, Abilene, Texas, offer a vantage point from which objects may be viewed at a distance of 13 miles. Almost the whole south horizon is rimmed by escarpments of the Callahan Divide of the Edwards Plateau. One of these, Cedar Gap Mountain, rises 569 ft above Abilene, and on its top is a radio tower (KRBC) that rises an additional 456 ft. My position for observation is 80 ft above the street, and on clear days the radio tower may barely be seen like a very dim pencil line on paper. The radio tower has a bright sky background above and back of the mountain on which it stands, or it probably would be invisible at that distance.

The structure is composed of three steel rods, each 2 1/6 in. in diameter, set in triangular form, and joined by a lattice of short rods to form the tower, inside of which is a narrow metal ladder. Each of the three flat faces of the tower is 50 in. across. Evidently, at a distance of 50 in. of lattice have about the visual appearance of a solid of that size.

If this steel tower 456 ft tall and 50 in. wide can be only faintly seen as a dim pencil-like line against a brilliantly lighted sky at a distance of 13 miles, it seems improbable that an offset of one foot in an escarpment face would be visible at that distance.

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