WRITING IN SAND

This novel research library in bottles consists of a collection of specimens of sand from areas all over America and some foreign countries indexed according to geographical location.

ASTRONOMY

Age of Universe Is at Least 10,000,000,000,000 Years

NEW evidence that the universe is at least 10,000 billion years old was reported by Sir James Jeans, noted British astronomer and cosmologist. (*Nature*, Sept. 14).

To Prof. Robert Grant Aitken, veteran director of Lick Observatory, Mt. Hamilton, Calif., goes the credit for what may be the astronomical measurements which will help decide the long-continued controversy on the age of the universe, Sir James indicates.

Prof. Aitken has just published the newest edition of his famous treatise on binary, or twin, stars which rotate about one another far out in space like balls on the ends of a dumbbell.

The orbits and the relative masses of the two parts of such binary stars can be used to calculate their age and, hence, some minimum age for the universe. New data given in Prof. Aitken's book, reports Sir James, can be used in calculations which are in good agreement with the so-called "long time" scale for the age of the universe, or 10,000 billion years.

Other estimates based on the time in which the universe has expanded to its present proportions from some central grouping yield values for the age of the universe as only 10 billion years, the "short time" scale. The large factor of 1,000 times between the short and long time scales is what Sir James hopes Prof. Aitken's data will clear up. Sir James is an advocate of the long time scale.

Science News Letter, September 21, 1935

The world's ancient letters include several on clay tablets that were sent by Crown Prince Sennacherib to his father, King Sargon.

GEOLOGY

Library in Sand Is Aid To Research on Concrete

WRITING in the sand is not as perishable as the world has been led to suppose. A sand library of more than three thousand "volumes" is an important adjunct of the research laboratory of the Portland Cement Association in Chicago. The "volumes" are bottled samples of sand from all over the American continent and some from foreign countries.

What the research specialists may read from these "volumes" is highly important to the construction industry because it aids in making more enduring concrete structures.

There are two principal kinds of sand —siliceous and calcareous. In the library, however, the sands are indexed according to geographical location, for greater convenience in referring to the adaptability of sand from a given location in making durable concrete.

The first step in investigating the quality of sand is to make a sieve analysis to determine the relative proportions of each of eight different sizes of grains which may be present.

Next comes a silt analysis to find the amount of dust present. Sand of which more than 10 per cent. will pass through a sieve with 100 meshes to the square inch gets a poor rating for the making of concrete.

The sand sample is next tested to learn whether organic matter is present. When the sand is immersed in a solution of sodium hydroxide, a change of color in the solution reveals the presence of organic matter.

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