affirmative; consequently, it should be demonstrated that my reasons are no good. Nobody ever attempted this, and when arguments were given purporting to be opposed to my ideas, these invariably were not my views but only what the critic fancied to be my views.[13]

A. E. Ortmann
Carnegie Museum, Pittsburg, Pa.,
October 4, 1906

SPECIFIC NAME OF NECTURUS MACULOSUS

In the last number of the *American Naturalist* (Vol. XLI., January, 1907, pp. 23–30) there is an elaborate paper by Professor F. C. Waite under the above title, in which he shows that the name employed there has the priority over *N. maculatus,* the term most commonly adopted by anatomists. Towards the end of the paper (p. 27) he makes the following statement: "In the past ten years although many papers have been written on *Necturus,* two only have, as far as I know, used the correct nomenclature."

I wish to say that the 'correct' name was pointed out and the proper references given by the late Dr. G. Baur as early as 1897 (*Zool. Bull.,* I., p. 41). Since then it has been employed by various systematists. Thus the name *N. maculosus* is used in the eighth edition of D. S. Jordan's 'Manual of the Vertebrate Animals of the Northern United States,' 1899, p. 175, in which I tried to bring the nomenclature up to date. It has since been used, both in this journal (Science, N. S., XI., 1900, p. 555) by Fowler, and in the *American Naturalist* (XL., 1906, p. 159) by Stone.

Leonhard Stejneger
Smithsonian Institution,
January 14, 1907

THE DEFINITION OF SOLID AND FLUID

To the Editor of Science:—The point I have raised (October 26) as to the definition of solid and fluid seems quite timely in view of the discussion going on between Hoskins and See, and the letter of Mr. Willcox (November 9). Note the use of the term 'solid' in one, of 'substance' in the other, of the two definitions of rigidity cited by Hoskins. Their difference seems to be as to whether it is proper to speak of the rigidity of a fluid or a gas. The real question of fact, how much the interior of the earth yields to a certain variation of pressure, has not thus far entered the discussion.

Again, Mr. Willcox defines fluid and solid quite other than was suggested by me and the line between as the curve of the plastic yield point.

His definition is quite tenable, if we agree to it, may be made as exact, and fits quite as well the Latin derivation of the word fluid, but I am not sure that it agrees as well with usage or is as practical. We could then speak of no substance as solid or fluid without knowing under what pressure it is. Whether a body were solid or fluid would then depend not merely on the state of the body itself, including its temperature, but also on its surroundings—the pressure. We cannot, then, as he writes me, 'properly refer to any substance as a plastic solid.'

The earth's interior would be classed as a fluid, and not, as has been lately common, on account of its high rigidity, as solid.

The one point which is not quite clear, as he brings it in parenthetically, is whether the plastic yield point, and so his definition, depends on the time or rate of application of pressure. I judge not, according to the molecular theory which he adopts (dear to T. Sterry Hunt) that there are three states of molecular aggregation, solid, fluid and gas, and that the solid molecules are heavy and complex aggregates of the liquid molecules, as these are in their turn of the gas, and that sufficient temperature and pressure will break up the large solid molecules.

The definition which occurred to me, that a fluid is a body that can not rest under stress, *i. e.,* in a strained condition, is, however, just as definite and draws just as sharp line as that of Mr. Willcox. We may express it in his terms thus—*a fluid has a temperature such that its plastic yield point is reached even at zero pressure.* The relative content of the two concepts can be expressed graphically thus.

[13] See also my reply to Gager's criticism in Science, August 17, 1906, pp. 214–217.