

In Lewis' Own Words

This will be your first reading assignment for the course. It is a paper by G. N. Lewis (of Lewis structure fame) in 1916. While I would like for you to read the whole article briefly, please read the section "The Cubical Atom" (starting on p. 767) and "Molecular Structure" (starting on p. 774).

For Friday: Please return with your thoughts on the following questions written down, and pose 1-3 questions on the back which came up in your own reading. You will give this to another student.

For Monday: Please return with the second copy filled out, in which you put your revised thoughts on the front, and your thoughts on the other student's questions on the back.

1. Put this in historical context...it's 1916. What other model or models of the atom or molecule have you learned about in your classes that are contemporary with this one? What important models do we use today that haven't been invented yet? How is (are) the contemporary model(s) the same and different from Lewis' ideas?
2. There is a truly shocking statement at the end of the full paragraph on p. 773, in which he says, "[this study] leads, I believe, irresistibly to the conclusion that Coulomb's law of inverse squares must fail at small distances". Where does he get this notion (*Hint: it's later in the paper*)? Why does he make such a startling claim?
3. Why does Lewis propose *cubes* of all shapes for the atom? Why does he then reject cubes for another shape (and what is it)? How does he describe covalent bonding in the old (cubic) model? In his new model?