Uncertainty and Systematic Error in Measurement

Every measurement is imperfect. Analysis of the ways in which a measurement is imperfect often goes by the title "Error Analysis". However, the existence of experimental error is not necessarily an indication that an "error", in the colloquial sense, has been committed. After all, EVERY measurement is imperfect. **The experimenter's job is to understand and quantify the various contributions to imperfection of the measurement, and reduce them to the extent possible.**

Contributions to the imperfection of a measurement can usually be broken down into two categories: uncertainty, and systematic error.