

FINAGLE'S LAWS¹

Laws of Experiment

- First Law: If anything can go wrong with an experiment or test, it will.
- Second Law: Everything goes wrong at the same time.
- Third Law: Things left alone can only go from bad to worse.
- Fourth Law: Experiments must be reproducible; they should fail in exactly the same way every time.
- Fifth Law: Build no mechanism simply if a way can be found to make it complex and wonderful.
- Sixth Law: No matter how an experiment or test proceeds, someone will believe it happened according to his pet theory.
- Corollary One: No matter what the result is, someone will misinterpret it.
- Corollary Two: No matter what results are anticipated, someone will be willing to fake them.

Laws of Mathematics

- First Law: In any collection of data, the figures that are obviously correct, beyond all need of checking, contain the errors.
- Corollary One: No one whom you ask for help will see the errors.
- Corollary Two: Everyone who stops by with unsought advice will see the errors immediately.

Second Law: If, in any problem, you find yourself doing a transfinite amount of work, the

¹ The main body of these laws was formulated during the time Erich von Nagle was trying to prove his fundamental discovery that "...if a string has one end, then it must have at least one more." Although he was unsuccessful in his proof because, at that time, the tables of elliptic integrals had not been sufficiently developed, these laws stand as a lasting monument to his work. Professor von Nagle moved to Ireland, where his associates misunderstood the pronunciation of his name, hence the misnomer, "Finagle's Laws."

answer can be obtained by inspection.

Corollary: If inspection fails to yield the desired results, judicious application of one (or more) of the methods outlined later in the text may be in order (Von Nagle's Constant, etc.)

Law of Systems

When a system becomes completely defined and all possible avenues of inquiry and expansion have been completely explored, an uninformed, independent, amateur experimenter will discover something that either abolishes the system or expands it beyond all recognition.

Rules of Experimental Procedure

Rule 1: A detailed, comprehensive record of data is useful; it indicates that you have been busy.

Rule 2: To study a subject, first understand it thoroughly.

Rule 3: In case of doubt, make it sound convincing.

Rule 4: Do not believe in luck, rely on it.

Rule 5: When writing a report always leave room to add an explanation as to why the results do not work out. (This is also known as the Rule of the Way Out.)

Rule of the Lost Inch

In designing any type of construction, no overall dimension can be totaled correctly after 4:30 p.m. on Friday.

Corollary One: Under the same conditions, if any minor dimensions are given to sixteenths of an inch, they cannot be totaled at all.

Corollary Two: The correct total will become self evident at 8:15 a.m. on Monday.

Laws of Revision

First Law: Information necessitating a change in design will be conveyed to the designer after, and only after, the plans are complete. (Often referred to as the "Now They Tell Us" Law.)

Corollary: In simple cases where it is a matter of choosing between one obvious right way versus one obvious wrong way, it is often wiser to choose the wrong way so as to expedite subsequent revisions.

Second Law: The more minor and innocuous the modification appears to be, the further its

influence will extend and the more plans will have to be re-drawn.

Third Law: If, when completion of the design is imminent, field dimensions are supplied as they are, instead of as they were meant to be, it is always simpler to start over.

Fourth Law: It is usually impractical to worry beforehand about interference between parts to be mated; if there is none, someone will supply some for you (cf. first, second, and third laws above.)

Laws of the Universal Perversity of Matter

First Law: Any mechanical or electrical device is most likely to fail the day after the manufacturer's guarantee expires.

Second Law: Any mechanical or electrical device with any malfunction short of complete breakdown will function perfectly in the presence of any trained serviceman.

Third Law: Matter will be damaged in direct proportion to its value.

Corollary One: If a mechanism is accidentally dropped it will fall in such a way that maximum damage will occur.

Corollary Two: Two or more things fall at right angles. (i.e., attempting to catch one or the other results in missing both.)

In connection with the rules of experimental procedure, there are several developments in the interpretation of experimental data which deserve mention. The items are loosely grouped, in Mathematics, under the classification of constant variables, or, as some workers prefer, variable constants. Only three of the more fundamental methods are included herein.

Von Nagle's Constant²

Von Nagle's Constant is characterized as changing the universe to fit the equation.

$$\chi' = \Gamma_f + \chi$$

Where: χ = result obtained
 χ' = desired result
 Γ_f = Von Nagle's Constant

² The Von Nagle Constant is normally known as the "Finagle" Constant, as a result of the misunderstanding mentioned in Note 1. An example of the use of the Finagle Constant is seen in the introduction of Uranus as a planet of the Solar System. Since Newtonian Laws did not agree with the observed universe, the planet was introduced to make the universe fit the equations. Many years passed before the existence of Uranus was proved by observation.

Bougeurre Factor³

The Bougeurre Factor is characterized as changing the equation to fit the universe.

$$\chi' = \Delta_b \chi$$

Where: χ = result obtained
 χ' = desired result
 Δ_b = Bougeurre Factor

Diddle Coefficient⁴

The Diddle Coefficient is characterized as changing things so that the equation and the universe appear to fit; without actually requiring any change in either.

$$\chi' = \Psi_d \chi^2$$

Where: χ = result obtained
 χ' = desired result
 Ψ_d = Diddle coefficient

Combinations of the Above Quantities

For extremely difficult cases, or when maximum correlation between the equation and the universe is required, optimum results will be obtained by combining the Finagle Constant, the Bougeurre Factor, and the Diddle Coefficient in the following manner:

$$\chi' = \Gamma_f + \Delta_b \chi + \Psi_d \chi^2$$

Where all quantities are as previously defined.

³ The Bougeurre Factor is named after Charles Bougeurre, a French professor of Mathematics. The more common designation due to language difficulty, is "bugger" factor. The Bougeurre Factor is typified by Einstein's work with the basic Newtonian equations of motion and gravity, so that the equations were adjusted to fit the observed facts of the orbit of the planet Mercury. This work later became known as the "Theory of Relativity" (which, in its broadest definition, is a highly complex combination of the above, and many other, constants. Time and space limitations make it impossible to include a discussion of the Theory of Relativity in this compilation.)

⁴ The Diddle Coefficient is due to Ronald Featherstonebaugh Diddle, B.S., Flubar College, 1928. The original account of his great discovery will be found in his paper, "On the Significance of Random Experimental Data" (Doctoral Thesis, University of Tasmania, 1932; also printed in the Journal of the Association of Philosophical Engineers, Volume 12, pp. 872-879, October 1932.)

The photographers' use of a "soft" lens in taking portraits of women over thirty-five represents an excellent example of using the Diddle Coefficient. By sufficiently blurring the results, they are made to fit the facts in a more satisfactory manner.