

THE CONTRIBUTIONS OF EDSSEL MURPHY TO THE UNDERSTANDING OF THE BEHAVIOUR OF INANIMATE OBJECTS

I. INTRODUCTION

IT HAS LONG BEEN the consideration of the author that the contributions of Edsel Murphy, specifically his general and special laws delineating the behaviour of inanimate objects, have not been fully appreciated. It is deemed that this is, in large part, due to the inherent simplicity of the law itself.

It is the intent of the author to show, by references drawn from the literature, that the law of Murphy has produced numerous corollaries. It is hoped that by noting these examples, the reader may obtain a greater appreciation of Edsel Murphy, his law, and its ramifications in engineering and science.

As is well known to those versed in the state-of-the-art, Murphy's Law states that "If anything can go wrong, it will". Or, to state it in more exact mathematical form:

$$1 + 1 \rightarrow 2 \quad (1)$$

where \rightarrow is the mathematical symbol for hardly ever.

Some authorities have held that Murphy's Law was first expounded by H. Cohen when he stated that "If anything can go wrong, it will during the demonstration". However, Cohen has made it clear that the broader scope of Murphy's general law obviously takes precedence.

To show the all-pervasive nature of Murphy's work, the author offers a small sample of the application of the law in electronics engineering.

II. GENERAL ENGINEERING

II.1 A patent application will be preceded by one week by a similar application made by an independent worker.

II.2 The more innocuous a design change appears, the further its influence will extend.

II.3 All warranty and guarantee clauses become void upon payment of invoice.

II.4 The necessity of making a major design change increases as the fabrication of the system approaches completion.

II.5 Firmness of delivery dates is inversely proportional to the tightness of the schedule.

II.6 Dimensions will always be expressed in the least usable term. Velocity for example, will be expressed in furlongs per fortnight.

II.7 An important Instruction Manual or Operating Manual will have been discarded by the Receiving Department.

II.8 Suggestions made by the Value Analysis group will increase costs and reduce capabilities.

II.9 Original drawings will be mangled by the copying machine.

III. MATHEMATICS

III.1 In any given miscalculation, the fault will never be placed if more than one person is involved.

III.2 Any error that can creep in, will. It will be in the direction that will do the most damage to the calculation.

III.3 All constants are variables.

III.4 In any given computation, the figure that is most obviously correct will be the source of error.

III.5 A decimal will always be misplaced.

III.6 In a complex calculation, one factor from the numerator will always move into the denominator.

IV. PROTOTYPING AND PRODUCTION

IV.1 Any wire cut to length will be too short.

IV.2 Tolerances will accumulate unidirectionally toward maximum difficulty of assembly.

IV.3 Identical units tested under identical conditions will not be identical in the field.

IV.4 The availability of a component is inversely proportional to the need for that component.

IV.5 If a project requires n components, there will be n-1 units in stock.

IV.6 If a particular resistance is needed, that value will not be available. Further, it cannot be developed with any available series or parallel combination.

IV.7 A dropped tool will land where it can do the most damage. (Also known as the law of selective gravitation.)

IV.8 A device selected at random from a group having 99% reliability, will be a member of the 1% group.

IV.9 When one connects a 3-phase line, the phase sequence will be wrong.

The man who developed one of the most profound concepts of the twentieth century is practically unknown to most engineers. He is a victim of his own law. Destined to a secure place in the engineering hall of fame, something went wrong.

His real contribution lay not merely in the discovery of the law but more in its universality and in its impact. The law itself, though inherently simple, has formed a foundation on which future generations will build.

In fact, the law first came to him in all its simplicity when his bride-to-be informed him of the impending birth of an heir to the family fortunes.

This hitherto unpublished photograph of Edsel Murphy was taken just after he had heard his fiancée's news.

