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ON THE PROBLEM OF APPLIED MATHEMATICS

By Dr. James H. Taylor

The George Washington University

Almost anything is tremendously complicated. Frazer set out to write a monograph on a certain cult of ancient Greece and ended up with his famous work of twelve volumes entitled “The Golden Bough.” Consider a simple hobby like stamp collecting. One is soon involved in a maze of pertinent details such as kinds of paper, methods of printing, types of perforations, colors and shades which even the Bureau of Standards might find difficult or impossible to determine, and finally watermarks, overprints, surcharges and forgeries.

In comparison with any other well-recognized body of knowledge, mathematics must be relatively simple. Consider for instance a given mathematics, that is, a branch of mathematics like Euclidean geometry or projective geometry or real variable. You perhaps know how any one of these subjects may be set up. After two thousand years of experience the “natural” way appears to be as follows. One lists a set of undefined elements and relations, and a set of unproved propositions involving them; and from these all other propositions or theorems are to be obtained by the methods of formal, deductive logic. The unproved propositions which are imposed are called axioms, postulates or assumptions. For example, in projective or in Euclidean geometry “point” and “line” are undefined elements; the relation “on” is an undefined relation. One of the axioms reads as follows: If A and B are distinct points there is at least one line on both A and B.

It is important to appreciate that a mathematics seems to be completely determined once the postu-