MODERN MATHEMATICAL THOUGHT.

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ONE who, like myself, is not a mathematician in the modern sense naturally feels that some apology is due for accepting the invitation with which this Society has honored me, to address it on a mathematical subject. Possibly an adequate apology may be found in the reflection that one who has not gone deeply into any of the contemporaneous problems of mathematics, but who, as a student, has had a sufficient fondness for the subject to keep himself informed of the general course of thought in it, may be able to take such a general review as is appropriate to the present occasion. I shall therefore ask your consideration of some comparisons between the mode of thinking on mathematical subjects at the present time, and those methods which have come down to us from the past, with a view of pointing out in what direction progress lies, and what is the significance of mathematical investigation at the present day.

Among the miscellaneous reading of my youth was a history of modern Europe, which concluded with a general survey and attempted forecast of progress in arts, science, and literature. So far as I can judge, this work was written about the time of Euler or Lagrange. On the subject of mathematics the writer's conclusion was that fruitful investigation seemed at an end, and that there was little prospect of brilliant discoveries in the future. To us, a century later, this judgment might seem to illustrate the danger of prophesying, and lead us to look upon the author as one who must have been too prone to hasty conclusions. I am not sure that careful analysis would not show the author's view to be less rash than it may now appear. May we not say that in the special direction and along the special lines which mathematical research was following a century ago no very brilliant discoveries have been made? Can we really say that Euler's field of work has been greatly widened since his time? Of the great problems which baffled the skill of the ancient geometers, including the quadrature of the circle, the duplication of the cube, and the trisection of the angle, we have not solved one. Our only advance in treating them has been to show that they are insoluble. To the problem of three bodies we have not added one of the integrals necessary to the complete solution. Our elementary integral calculus is two