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REMARKS ON THE PROGRESS OF CELESTIAL
MECHANICS SINCE THE MIDDLE OF THE CENTURY.*

The application of mathematics to the solution of the problems presented by the
motion of the heavenly bodies has had a
larger degree of success than the same
application in the case of the other departments of physics. This is probably due to
two causes. The principal objects to be
treated in the former case are visible every
clear night, consequently the questions
connected with them received earlier attention;
while, in the latter case, the phenomena to
be discussed must oftentimes be produced by
artificial means in the laboratory; and the
discovery of certain classes of them, as, for
instance, the property of magnetism, may
justly be attributed to accident. A second
cause is undoubtedly to be found in the
fact that the application of quantitative
reasoning to what is usually denominated
as physics generally leads to a more difficult
department of mathematics than in the case of
the motion of the heavenly bodies. In
the latter we have but one independent
variable, the time; while in the former gen-
erally several are present, which makes the
difference of having to integrate ordinary
differential equations or those which are
partial. Thus it happens that, while the

*Presidential address delivered before the American
Mathematical Society, December 27, 1895, by Dr
G. W. Hill.