branches of research, it will be useful to define them more clearly.

Ever since Newton laid down the general laws of motion, it has been seen with increasing clearness to be the object of mathematical physics to describe the existing observable or supposed forms of motion in nature by having recourse to the fundamental laws of motion coupled with the smallest possible number of assumptions as to the ultimate constitution of matter or of the moving substance. As soon as any definite assumption was made, it became necessary to follow it into all possible consequences, and not to make any new assumptions so long as the capabilities of the old ones were unexhausted, or so long as it was not shown either that the new assumption was based upon observable facts, or did not involve latent contradictions with those already admitted. Newton had led the way by making one great assumption in addition to laying down the laws of motion. This was the property of gravitation. Heedless of Newton's warning that this assumption, though proved by experiment, did involve certain seeming absurdities which called for further examination, philosophers like Boscovich, and mathematicians like Laplace, busied themselves with drawing all the consequences of the assumption, and they saw the most hopeful way of further progress in an extension of it into the realm of molecular physics. Young was probably one of the first to see the futility or the mere semblance of truth in the astronomical view of nature. He approached both by experiment and mathematically the great class of phenomena of small, extremely rapid, periodic move-