

The Mathematical Sciences.

I. Pure Mathematics.

II. Mixed or Applied Mathematics, Physics, or Natural Philosophy.

Mechanics of Solids,	{ Statics.
	{ Dynamics.
Do. of Fluids,	{ Hydrostatics.
	{ Hydrodynamics.
Do. of Gases, or Pneumatics,	{ Aerostatics.
	{ Aerodynamics.
Astronomy.	
Optics,	{ Dioptrics.
	{ Catoptrics.
	{ Chromatics.
Acoustics,	{ Diacoustics.
	{ Catacoustics.

MATTER AND MOTION.

ALL things, of the existence of which we are informed by our senses, bear the general appellation of *matter*. The earth which we inhabit, the air which we breathe, the distant planets and suns, and probably the whole of that space in which the heavenly bodies move, are matter, though some are much more solid or dense than others. A stone, for instance, is denser than water; water again is denser than cork; yet all are alike matter. The earth is more solid than the planet Jupiter, which has been ascertained to be as light as water; but still both are alike material.

Matter, in all its forms, is subject to various fixed rules or laws, which have been established by the Creator for very important ends. By one of these it is ordered that every particle or mass of matter possesses a power of *attracting* other particles or masses. The attractive power of masses of matter is in proportion to their respective sizes, when their densities and distances are the same. Thus, one of those globules of ink which sometimes start from our pen, and settle lightly upon a hair of the paper, will be found to be drawn up towards a larger drop which we carefully bring near to it. Thus, also, we often observe that a little stalk of tea, floating in our cup, no sooner approaches the side than it is suddenly drawn towards it, and settles as closely as it can alongside. All pieces of matter would be observed to exercise the same attractive influence over each other, if in circumstances equally favourable to allow of a movement.