naked stem about six inches high. The radical leaves are like graſs. The flowers are terminal, pale red, with a round head, and not very large. This plant flowers in July or Auguſt, and grows in meadows near the ſea.

2. *Limonium,* ſea lavender. The ſtem is naked, branch­ed, and about a foot high. The radical leaves are long, pointed, and grow on footſtalks. The flowers are blue, and grow on long ſpikes on the tops of the branches. It grows on the ſea-coast in South Britain.

3. *Reticulata,* matted ſea-lavender. The ſtem is prostrate, and terminated by a panicle of flowers. The branches are naked, barren, and bent back. The leaves are wedge ſhaped. This ſpecies is alſo found on the ſea-coaſt of South Britain.

STATICS, a term which the modern improvements in knowledge have made it neceſſary to introduce into phyſico-mathematical ſcience. It was found conveni­ent to diſtribute the doctrines of univerſal mechanics in­to two claſſes, which required both a different mode of conſideration and different principles of reaſoning.

Till the time of Archimedes little ſcience of this kind was poſſeſſed by the ancients, from whom we have received the firſt rudiments. His inveſtigation of the centre of gravity, and his theory of the lever, are the foundations of our knowledge of common mechanics ; and his theory of the equilibrium of floating bodies contains the greateſt part of our hydroſtatical knowledge. But it was as yet limited to the ſimpleſt caſes ; and there were ſome in which Archimedes was ignorant, or was miſtaken. The marquis Guido Ubuldi, in 1578, publiſhed his theory of mechanics, in which the doctrines of Archimedes were well explained and conſiderably augmented. Stevinus, the celebrated Dutch engineer, publiſhed about *20* years after an excellent ſystem of mechanics, containing the chief principles which now form the ſcience of equilibrium among ſolid bodies. In particular, he gave the theory of inclined planes, which was unknown to the ancients, though it is of the very firſt importance in almoſt every machine. He even ſtates in the moſt expreſs terms the principle afterwards made the foundation of the whole of mecha nies, and publiſhed as a valuable discovery by Varignon, viz. that three forces, whoſe directions and intentities are as the sides of a triangle, balance each other. His theory of the preſſure of fluids, or hydrostaties, is no leſs eſtimable, including every thing that is now re­ceived as a leading principle in the ſcience. When we conſider the ignorance, even of the moſt learned, of that age in mechanical or phyſico-mathematical know­ledge, we muſt conſider thoſe performances as the works of a great genius, and we regret that they are ſo little known, being lost in a croud of good writings on thoſe ſubjects which appeared ſoon after.

Hitherto the attention had been turned entirely to equilibrium, and the circumſtances neceſſary for produ­cing it. Mechanicians indeed saw, that the energy of a machine might be ſomehow meaſured by the force which could be oppoſed or overcome by its interven­tion : but they did not remark, that the force which prevented its motion, but did no more than prevent it, was an *exact* meaſure of its energy, becauſe it was in immediate equilibrio with the preſſure exerted by that part of the machine with which it was connected. If this oppoſed force was leſs, or the force acting at the other extremity of the machine was greater, the me­chanicians knew that the machine would move, and that work would be performed ; but what would be the rate of its motion or its performance, they hardly pretended to conjecture. They had not ſtudied the ac­tion of moving forces, nor conceived what was done when motion was communicated.

The great Galileo opened a new field of ſpeculation in his work on Local Motion. He there considers a change of motion as the indication and exact and ade­quate meaſure of a moving force; and he considers every kind of preſſure as competent to the production of ſuch changes. — He contented himſelf with the application of this principle to the motion of bodies by the action of gravity, and gave the theory of projectiles, which re­mains to this day without change, and only improved by conſidering the changes which are produced in it by the reſiſtance of the air.

Sir Iſaac Newton took up this ſubject nearly as Ga­lileo had left it. For, if we except the theory of the centrifugal forces ariſing from rotation, and the theory of pendulums, publiſhed by Huygens, hardly any thing had been added to the ſcience of motion. Newton conſidered the ſubject in its utmoſt extent ; and in his ma­thematical principles of natural philoſophy he conſiders every conceivable variation of moving force, and deter­mines the motion reſulting from its action.—His firſt application of theſe doctrines was to explain the celeſtial motions ; and the magnificence of the ſubject cauſed it to occupy for a while the whole attention of the ma­thematicians. But the ſame work contained propoſitions equally conducive to the improvement of common mechanics, and to the complete underſtanding of the me­chanical actions of bodies. Philoſophers began to make theſe applications alſo. They ſaw that every kind of work which is to be performed by a machine may be conſidered abſtractedly as a retarding force; that the impulſe of wa­ter or wind, which are employed as moving powers, act by means of preſſures which they exert on the impelled point of the machine ; and that the machine itſelf may be conſidered as an aſſemblage of bodies moveable in certain limited circumſtances, with determined direc­tions and proportions of velocity. From all theſe considerations reſulted a general abſtract condition of a body acted on by known powers. And they found, that after all conditions of equilibrium were ſatisfied, there remains a ſurplus of moving force. They could now ſtate the motion which will enſue, the new reſiſtance which this will excite, the additional power which this will abſorb ; and they at laſt determined a new kind of equilibrium, not thought of by the ancient mechanici­ans, between the reſiſtance to the machine performing work and the moving power, which exactly balance each other, and is indicated, not by the *rest,* but by the *uniform motion of* the machine.—In like manner, the mathematician was enabled to calculate that precise motion of water which would completely abſorb, or, in the new language, balance the ſuperiority of preſſure by which water is forced through a sluice, a pipe, or canal, with a constant velocity.

Thus the general doctrines of motion came to be con­ſidered in two points of view, according as they balan­ced each other in a state of rest or of uniform motion. Theſe two ways of conſidering the ſame ſubject requi­red both different principles and a different manner of reaſoning. The firſt has been named Statics, as ex-