sessed of ſhells, was only the product of a viſcous tranſudation from the body of the animal, containing earthy particles united by mere juxtaposition. This hypothesis, however, is liable to very great and inſurmountable difficulties, if we apply it to the formation of ſome of the most common shells : for how, accord­ing to this ſyſtem, it may be aſked, can the oyſter, for inſtance, conſidered ſimply as a mould, form to itſelf a covering ſo much exceeding its own body in dimensions ?

M. Heriſſant, in the Memoirs of the Academy of Sciences for 1766, has diſcovered the ſtructure of ſhells to be organical. In the numerous experiments that he made on an immenſe number, and a very great va­riety, of animal ſhells, he conſtantly found that they were compoſed of two diſtinct ſubſtances ; one of which is a cretaceous or earthy matter ; and the other ap­peared, from many experiments made upon it by burning, diſtillation, and otherwiſe, to be evidently of an animal nature. Theſe two ſubſtances he dexterouſly ſeparated from each other by a very eaſy chemical analyſis ; by the gentle operation of which they were exhibited diſtinctly to view, without any material alte­ration from the action of the ſolvent, or inſtrument em­ployed for that purpoſe. On an entire shell or a fragment of one, contained in a glass veſſel, he poured a ſufficient quantity of the nitrous acid, conſiderably diluted either with water or ſpirit of wine. After the liquor has diſſolved all the earthy part of the ſhell (which may be collected after precipitation by a fixed or volatile alkali), there remains floating in it a ſoft ſubstance, conſiſting of innumerable membranes of a retiform appearance, and dispoſed, in different ſhells, in a variety of poſitions, which conſtitutes the animal-part of it. This, as it has not been affected by the ſolvent, retains the exact figure of the ſhell ; and, on being view­ed through a microſcope, exhibits ſatisfactory proofs of a vaſcular and organical ſtructure. He ſhows that this membranous ſubſtance is an appendix to the body of the animal, or a continuation of the tendinous fibres that compoſe the ligaments by which it is fixed to its ſhell ; and that this laſt owes its hardneſs to the earthy particles conveyed through the veſſels of the animal, which fix themſelves into, and incruſt, as it ware, the meſhes formed by the reticular filaments of which this mem­branous ſubſtance is compoſed. In the ſhell called por­celaines in particular, the delicacy of theſe membranes was ſo great, that he was obliged to put it into ſpirit of wine, to which he had the patience to add a single drop of ſpirit of nitre day by day, for the space of two months ; left the air generated, or let looſe by the ac­tion of the acid on the earthy ſubſtance, ſhould tear the compages of its fine membranous ſtructure into ſhatters ; as it certainly would have done in a more haſty and leſs gentle diſſolution. The delicate reticulated film, left after this operation, had all the tenuity of a ſpider’s web ; and accordingly he does not attempt to delineate its organization. Jn other ſhells he employed even five or six months in demonſtrating the complica­ted membranous ſtructure of this animal-ſubſtance by this kind of chemical anatomy. In general, however, the proceſs does not require much time.

Of the many ſingular configurations and appearances of the membranous part of different ſhells, which arc deſcribed in this memoir, and are delineated in ſeveral well executed plates, we ſhall mention only, as a ſpecimen, the curious membranous ſtructure obſerved in the lamiae of mother-of-pearl, and other ſhells of the ſame kind, after having been expoſed to the operation of the author’s ſolvent. Beside the great variety of fixed or permanent colours with which be found the animal-filaments of theſe shells to be adorned, it is known, that the ſhell itſelf prefects to the view a ſucceſſion of rich and changeable colours, the production of which he easily explains from the configurations of their membranes. Nature, he obſerves, always mag­nificent in her designs, but Angularly frugal in the exe­cution of them, produces theſe brilliant decorations at a very ſmall expence. The membranous ſubſtance a- bove-mentioned is plaited and rumpled, as it were, in ſuch a manner, that its exterior laminae, incruſted with their earthy and ſemi-tranſparent matter, form an infi­nite number of little prisms, placed in all kinds of direc­tions, which refract the rays of light, and produce all the changes of colour obſervable in theſe shells.

With respect to the figures and colours of ſhells, it is obſerved, that river shells have not ſo agreeable or diversified a colour as the land and ſea ſhells ; but the va­riety in the figure, colours, and other characters of ſea ſhells, is almost infinite. The number of diſtinct ſpecies we find in the cabinets of the curious is very great ; and doubtleſs the deep bottoms of the ſea, and the ſhores yet unexplored contain multitudes ſtill unknown to us. Even the same ſpecies differ in ſome degree in almoſt every individual ; ſo that it is rare to find any two ſhells which are alike in all respects.

This wonderful variety, however, is not all the pro­duce of one ſea or one country ; the different parts of the world afford us their different beauties. Bonani obſerves, that the moſt beautiful ſhells we are acquaint­ed with come front the Eaſt Indies and from the Red ſea. This is in ſome degree countenanced by what is found to this day; and from the general obſervations of the curious, it ſeems, that the ſun, by the great heat that it gives to the countries near the line, exalts the colours of the ſhells produced there, and gives them a luſtre and brilliancy that thoſe of colder climates always want : and it may be, that the waters of thoſe vaſt ſeas, which are not subject to be weakened by freſh rivers, give a nouriſhment to the fiſh, that may add to the bril­liancy of their ſhells.

The shores of Asia furniſh us with. the pearl-oyſters and ſcallops in great perfection. About Amboyna are found the moſt beautiful ſpecimens of the cabbage-shell, the arroſoir, the ducal mantle, and the coral oysters, or echinated oyſters. Here alſo are found a great variety of extremely beautiful muſcles, tellinæ, and volutas ; ſome fine buccſhums, and the ſhell called the Ethiopian crown, in its greateſt perfection. The dolia, the murices, and the cassandræ, are alſo found on theſe coaſts in great beauty. Many elegant ſnails and ſcrew-ſhellas are alſo brought from thence ; and finally, the ſerapion and spider-ſhells. The Maldive and Philippine islands, Bengal, and the coaſt of Malabar, abound with the moſt elegant of all the ſpecies of ſnails, and furniſh many other kinds of ſhells in great abundance and perfection. China abounds in the fineſt ſpecies of porcelain ſhells, and has alſo a great variety of beautiful ſnails. Japan furniſhes us with all the thicker and larger bivalves ; and the isle of Cyprus is famous above all other parts of the world for the beauty and variety of the patella or limpet found there.