Wm Howis.

THE Literary Magazine AND BRITISH REVIEW

for 1789.

VOL. III.

Quid dem? Quid non dem? Renuis quod tu jubet alter
Quod petis id sanè est invisum acidumque duobus.

Horat.

London

Printed for the Proprietors and sold by

C. FORSTER, No. 71, Poultry.

When the Scieh of the Derviſes dies his eldeſt ſon ſucceeds him in his dignity, that is to ſay to that place which his father enjoyed. With regard to the other ſons they are free to lead the ſame kind of life as their fathers.

Theſe monks make a vow of poverty, and when charity is given them, they never receive it with the open hand; whatever is offered them, they take hold of it with the thumb, which they afterwards keep cloſely ſqueezed againſt their fingers. They never ſay I thank you, but only *Evallah*, that is to ſay, *may it be well for God.*

MEMOIR ON THE REGENERATION OF CERTAIN PARTS OF THE BODIES OF FISHES.

BY MR. BROUSSONET.

IN certain claſſes of animals we obſerve ſome parts ſuſceptible of motion, which reproduce themſelves after they have been deſtroyed; but this reproductive power is much leſs ſenſible in animated beings, the organization of which is more perfect, than in thoſe the organization of which being leſs complicated, ſeems rather to approach that of vegetables.

Among all the experiments which have been made to prove the poſſibility of the regeneration of different parts of the ſame animal, there are ſome, without doubt, which we are warranted to diſtruſt; and it has happened more than once, perhaps, that when we have imagined that we divided the ſame individual into diſtinct portions, we divided only a habitation common to ſeveral, which remaining entire in each portion, have renewed their habitation. Numerous obſervations, however, leave us in no doubt reſpecting the reproduction of certain organs in marine animals, in earth-worms, in ſnails, and in a great number of other ſpecies of the ſame families. The parts even which we conſider as eſſential to life, ſuch as the head, grow up on thoſe animals after having been cut off. This phenomenon appears very ſurpriſing on the firſt view, becauſe numerous examples have taught us to conſider that organ as abſolutely neceſſary to the exiſtence of animals, though experience teaches us, that it is leſs eſſential in proportion as their organization is leſs perfect. The tortoiſe, the different parts of which, in their ſtructure, exhibit leſs perfection than thoſe of animals the blood of which is warm, lives almoſt two months after its head has been cut off.

The parts which preſent examples of this kind of regeneration are in the greater part of animals ſoft, of a homogeneous ſubſtance, and almoſt like that of the reſt of the body. They reproduce themſelves almoſt as the nails, horns, &c. in animals which have warm blood; a circumſtance which ought to make us conſider as ſomething extraordinary, the new formation of parts compoſed of ſubſtances hard and ſoft, and formed of ſeveral articulations.

This regeneration of articulate parts has been obſerved in animals of two different orders. Some, ſuch as cray-

" went to the *fauxlourgs Santais*, to ſee the religious ceremonies of the Derviſes, called " *Rufai*. They began their exerciſe by turning round, and ſinging in each other's ears, " after which they agitated their bodies with different motions, and in a moſt violent " manner, repeating the words *illah, hou, hou*. After four hours ſpent in this manner, " they became as it were frantic, a ſituation which appeared to me not to be altogether " counterfeited. Some threw themſelves on the ground, and knocked their heads " againſt the walls, others foamed at the mouth, fell into convulſions, and cried out, that " they ſaw the prophet. At laſt they brought ſpikes of red hot iron, upon which the " moſt fervent threw themſelves before our eyes, whilſt others held them in their mouths " until they became cool. The ceremony concluded with ſome miracles, which the " ſuperior performed by touching the ſick and the lame."

fiſhes,

fiſh, have their ſkeleton on the outſide, that is to ſay, their ſoft parts are covered with a hard ſubſtance. In others, on the contrary, ſuch as the lizard, the ſalamander, &c. the ſkeleton is in the inſide, that is to ſay, the bony part is covered by the parts that are ſoft.

It is well known that cray-fiſh, the parts of which are joined to the body by very delicate articulations, are liable to loſe them, but that new ones grow up at the end of ſome weeks.

The reproduction of the paws of ſalamanders has been traced with the greateſt minuteneſs, by two of the moſt diſtinguiſhed obſervers of the preſent age, Mr. Bonnet of Geneva, and Mr. Spallanzani. We are indebted to theſe gentlemen for a number of diſcoveries in one of the moſt curious points of phyſiology. The regeneration, however, of articulate parts, has not been much examined in fiſhes, a kind of animals very different from thoſe which have been already obſerved, and of which the blood is never above two or three degrees warmer than the element they inhabit.

I have cut certain portions from the fins of different fiſhes, and having repeated this experiment at various epochs, I have always found that theſe parts reproduced themſelves nearly. It appeared to me, that they grow up quicker in fiſhes that are young, and in ſome ſpecies rather than in others.

Having cut away part of the fins of ſome gold fiſh, I obſerved the third day on the edge which had been cut, a kind of whitiſh excreſcence; on the eighth this excreſcence was ſenſibly extended, and it ſoon became a membrane, which at firſt was only a line in breadth. This membrane was thicker than that which formed the bottom part of the fin, but in proportion, as it extended itſelf, it became thinner, and tranſparent. At the end of three months I could diſtinguiſh the formation of the bony ribs, deſtined to ſupport this membrane. They appeared to be a continuation of the griſtles of the baſe. They at firſt ſeemed to be of a ſubſtance like jelly.

Having cut the right fin of the breaſt of a gold fiſh, in the ſpace of eight months that part became as large as the left, which I had not touched. I repeated this operation on the fins of the belly, and the reſult was always the ſame. It is true that though the new fins were as large as the old, they remained ſome time white, and leſs tranſparent than the reſt.

I made oblique ſections tranſverſely, and, in a word, in every direction, in the tail fin of different fiſhes, and the parts cut always regenerated at the end of a certain time. Fiſhes ſubjected to theſe experiments loſt their equilibrium, and their progreſſive faculty became leſs in proportion as I cut their fins. They never recovered their natural poſition until theſe parts were renewed.

From ſome fiſhes I cut off the fins as near to the body as poſſible; theſe animals were then unable to keep themſelves horrizontally in the water. Their heads inclined to the bottom of the veſſel; they wavered, and could not, but with great exertion, reſume an horizontal poſition. Their fins grew up very ſlowly.

The ſame experiments having been repeated on ſeveral fiſhes, I always obſerved the ſame effects. In a carp, which had the edges of its fins gnawed by ſmall fiſhes, in ſuch a manner, that they appeared to be fringed, I perceived, at the end of ſome months, that the edges were become perfectly ſmooth.

I remarked that the fins were renewed generally ſooner or later, according as they were more or leſs uſeful to the animal. Mr. Spallanzani made a ſimilar obſervation on earth worms, the heads of which were conſtantly reproduced ſooner than the poſterior part of the body; in the like manner, in fiſhes, the tail fin, the moſt uſeful of all, ſince it enables them to execute almoſt all their motions, was always formed ſooner than thoſe of the belly or the breaſt; and thoſe which are deſtined to ſupport the fiſh at an equal height, and to aid it in its lateral motions, were renewed much ſooner than thoſe of the

the back, in which I could ſcarcely diſtinguiſh the new cartilages ſeven months after they had been cut.

The membrane which formed the firſt rudiments of the fin, had different degrees of thickneſs, according to the different kinds of fiſhes. It was compoſed of two leaves, between which were the griſtles, compoſed ſometimes of one piece, hard and ſharp, but more frequently of ſeveral bony parts, cloſely united by a cartilaginous ſubſtance. That the fins may be reproduced, part of the cartilages muſt be left. If this part be entirely deſtroyed, new fins will not grow up in the room of the old ones. This I have often obſerved in ſeveral fiſhes, the dorſal fins of which, with part of the back, had been taken away, and in the room of which there was formed a plain future.

Though fiſh cannot well diſpenſe with theſe organs, they are able in ſome meaſure to ſupply what is wanting by thoſe which are left. I have ſeen very large fiſh live ſeveral years, though deprived of the half of their bodies, that is to ſay, of that part which extends from the anus to the tail.

The wings of birds have been compared to the fins of fiſh, and the feathers to the cartilages of the latter; but there is a very great difference in theſe organs, in reſpect to the manner in which they are reproduced; we know that the feathers never grow up after they have been cut.

In almoſt all fiſh, the cartilages of the fins and tail are very ſtrong and numerous. If we compare the number of theſe bony ſubſtances with that of the bones of the paws of a ſalamander, we ſhall find that it is much ſuperior. There is, indeed, a very great difference between theſe organs, eſpecially reſpecting the manner in which the different hard parts are connected with one another.

If the membrane which forms the fins has been torn, according to the direction of the cartilages, the two parts will unite, and form a kind of future, which diſappears by degrees. Fiſhes are often found which have ſeveral of theſe futures in their fins, eſpecially in thoſe of the back.

This regenerating faculty of the fins is ſo much the more uſeful to fiſhes, as theſe parts are continually expoſed to be torn or cut either by different bodies being daſhed againſt them, or by the teeth of animals. Their increaſe, however, appeared to me to be always very ſlow, but there is every reaſon to believe that it is much quicker in thoſe fiſh which are in a ſtate of liberty.

My intention, in theſe few obſervations, has been to preſent a fact, which, in my opinion, may be of ſome uſe to phyſiology, and to offer a new proof of the multiplicity of the reſources of nature, when it may be neceſſary to reſtore to organiſed bodies that original ſtate of perfection which they have been deprived of by ſecondary cauſes.

A Short account of MOLA DI GAETA.

MOLA DI GAETA is a ſmall town of Italy, in the kingdom of Naples, ſituated on the ſea, in the Terra-di-Lavoro, and built on the ruins of the ancient Formiæ. Horace compliments Ælius Lamia on his being deſcended from the firſt founder of this city:

> Auctore ab illo ducis originem,
> Qui Formiarum mœnia dicitur,
> Princeps ——.

The ſame poet compares the wines made from the grapes of the Formian hills, with Falernian:

> —— Mea nec Falernæ,
> Temperant vites, neque Formiani
> Pocula colles.

The happy ſituation of this country, and the mildneſs of its climate, induced many of the Romans in the flouriſhing times of the republic to

erect a great number of country houſes in it, the ruins of which may ſtill be ſeen every where around. Cicero had a villa near this place, and it was on this coaſt where that great orator was murdered in his litter, as he was endeavouring to make his eſcape to Greece. Formiæ remained long populous, and in the ninth century, it was an epiſcopal ſee, but having been deſtroyed by the Saracens, the ſee was transferred to Gaeta itſelf, which is ſituated towards the point of the gulph.

The fortreſs of Gaeta is built on a promontory, at the diſtance of about three miles from Mola; but travellers, who are deſirous of viſiting the former, generally croſs the gulph, which lies between them; and immediately, as the moſt remarkable thing, they are ſhewn a large cleft in a rock, which, it is ſaid, was miraculouſly ſplit in that manner at the death of our Saviour. To put this aſſertion beyond doubt, ſomething like the impreſſion of a man's hand on the rock is ſhewn at the ſame time, of which the following account is given: A certain perſon having been informed on what occaſion the rent took place, ſtruck the palm of his hand on the marble, declaring he could no more believe the ſtory told him, than that his hand would leave its mark on the rock; on which, to the great confuſion of this infidel, the ſtone yielded like wax, and the impreſſion ſtill remains, as a warning to unbelievers.

This rock is much reſorted to by pilgrims, and many veſſels often touch here, that the ſeamen may be provided with little pieces of marble, which they earneſtly requeſt to be procured as near the fiſſure as poſſible. Theſe they wear always in their pockets, purſuaded, that in caſe of ſhipwreck they will be more efficacious in preſerving them from drowning than a cork jacket. Some of theſe ſuperſtitious people, however, have the misfortune to be drowned, but this does not prevent the marble from preſerving its reputation. In the caſtle ſtrangers are ſhewn, among other curioſities, the ſkeleton of the famous Bourbon, Conſtable of France, who was killed in the ſervice of the Emperor Charles V. while he was ſcaling the walls of Rome.

OBSERVATIONS ON THE ANIMAL AND VEGETABLE POISONS OF THE SOUTHERN PARTS OF AFRICA.

FROM PATERSON'S TRAVELS.

OF the reptiles of Africa, the moſt poiſonous is the horned ſnake; it is of a greyiſh color, and about eighteen inches long: its head, which is very flat, is large in proportion to the ſize of the body, with ſmall ſcales, which the inhabitants call horns, riſing over its eyes.

This ſerpent, ſo truly formidable from the mortal nature of its bite, particularly abounds in the country of the Boſhmen and Nimiqua Hottentots, who uſe its poiſon, in preference to that of all others, for poiſoning their arrows. The Boſhmen, indeed, who have no cattle of their own, and depend entirely on their bows for ſubſiſtence, ſeem to have been furniſhed by nature with this poiſon as their only defence againſt their numerous enemies. Impelled by hunger, they often quit the mountains and plunder the Dutch peaſants of their cattle; and were it not for theſe poiſonous weapons they would be unable to withſtand or eſcape from the parties which in theſe caſes are ſent againſt them; but thus armed, ſeveral of the Dutch have been killed, and many have barely eſcaped with life from their wounds.

The uſual mode of preparing this poiſon, is by bruiſing the whole ſnake till it becomes of the conſiſtence of a gum. A ſmall quantity of this ſubſtance is then tied on the point of the arrow