tions of the sea, proves, by the union of the produce of the north and of the south, the happy situation of the city. Though a high mountain rises near it, and that on the north side, the harbour is not sufficiently protected against winds, and the cold is sometimes severe. The warm sirocco, which often blows over from Africa, is very relaxing, and frequently brings on diseases. At the time of our arrival the vegetable world was almost dead, and excepting *Helleborus hyemalis*, *Crocus reticulatus*, and *Primula acaulis*, we found on the bare ground scarcely a sign of the approaching spring. The sea, however, afforded a more ample supply of animals and marine plants; which, with the collections made on our way hither, and the insects which we obtained from naturalists here, were sent to the cabinet of natural history at Munich.* A painful sensation was excited in us by the information which we received, some days after our arrival, that the room which we occupied in the hotel where we put up, was that in which Winkelmann met his death from the hand of an assassin. We were here neighbours to the commander of the two frigates, Signor Nicola de Pasqualigo, a noble of Venice; a seaman, as much distinguished by general information and nautical knowledge, as by his courage and resolution, of which he gave proofs in the last war. He immediately took us to our future quarters on board

* See Note, page 17.

the Austria frigate, which, as well as the Augusta, was built and equipped in the arsenal of Venice, and were destined by the Austrian government to receive on board the greater part of the extraordinary embassy, and of the legation to the court of Brazil, the members of the scientific expedition, and some agents for the commercial intercourse to be opened with Brazil, as well as the Austrian mercantile articles intended for that purpose. Some of the officers and crew were Germans, but the greater part Venetians.

Every thing was ready for sailing, and we too had completed all our preparations, when news was received that it would be above a week before the embassy would arrive. We resolved, therefore, before we quitted our native land, to view the treasures of art at Venice. A favourable opportunity for this plan was offered by the return of an imperial brig to Venice, which had brought from the arsenal some stores necessary to complete the equipment of our two frigates. We sailed in the night of the 25th of March, and in the morning were already at the entrance of the harbour of Venice. The sea ran high, and the motion of the vessel did not fail to produce in us the usual symptoms of sickness; we were therefore doubly rejoiced when we had passed the dangerous entrance, and felt ourselves upon terra firma in the square of St. Mark. In order to make ourselves acquainted with the city, we rowed in one of the black gondolas in use here, through

the labyrinth of canals, to those noble buildings which remain as monuments of the time when Venice, in possession of the sovereignty of the Mediterranean, brought to the markets of Europe all the treasures of the East. Its present state bears testimony to the instability of all human splendour. But every thing great and glorious that the commerce of the world could produce, is preserved in the architectural monuments in the square of St. Mark; which the art of Tintoret, Paul Veronese, and Titian, by their warm and vivid colouring, adorned, in the decline of the republic, like the parting beams of the setting sun.

From the top of St. Mark's we enjoyed the delightful prospect of the plain of Lombardy, stretched out between the Alps and the Appennines, and so richly adorned with cities and universities. A view of this country involuntarily calls to mind the immortal poets and artists whom its romantic natural beauties have inspired, and fills the soul of the observer with the most pleasing and sublime sensations. In us it excited a wish, to see at least the neighbouring city of Padua, and its once celebrated university. Half a day's journey brought us to that antique place, where we had the pleasure of becoming acquainted with professors Brera, Caldani, and Bonato. In the botanic garden, which formerly, under Guilandinus, so greatly contributed to the reputation of the university, we were struck with some trees, originally brought from the East, and which have now grown

to a large size; viz. *Laurus Borbonia*, *L. Benzoin*, *L. Sassafras*, *Liquidambar Styraciflua*, *imberbe*, *Pinus Cedrus*, *Acacia Julibrissin*, which continue to flourish, in undiminished verdure, monuments of the former glory of Venice. But beyond the limits of this garden, the country, at this season, was still dry and bare; only a few liliaceous plants, such as *Hyacinthus racemosus*, *Erythronium*, *Dens Canis*, *Scilla bifolia*, *Crocus reticulatus*, adorning the naked limestone hills. With this excursion the time of absence allowed us expired, and it was necessary to think of returning to Triest. The wind, since our arrival at Venice, had blown so steadily from the north, that, to ensure our not being too late, we resolved, instead of going by sea, to proceed by land, by way of Treviso, to Triest, which we reached safe after an agreeable journey of two days.

Some members of the legation and some of the naturalists had arrived meantime at Triest, and the remainder came the following day; so that our births on board the frigates were assigned us, the baggage embarked, and the whole company took up their quarters on board, on the 7th of April. Baron Von Neveu, counsellor of legation, who was afterwards to be chargé d'affaires at the court of Brazil, had the sole direction of the expedition; because the ambassador, Count Von Eltz, was to embark afterwards, with the august bride, at Leghorn. He had with him Count Von Schönfeld, and Count Von Palffy, as gentlemen of the

embassy. All three were on board the Austria, as well as the commander of the two frigates. Quarters were assigned on board the same vessel, to professor Mikan and his lady; the two Bavarian naturalists, Spix and Martius; the Austrian landscape painter Th. Ender; M. Weber, merchant of Triest; and to M. Nerini, Austrian consul-general at Cadiz, who took the opportunity of this conveyance to Gibraltar. The Augusta frigate took on board the Austrian naturalist, Natterer; the gardener, Schott; the botanical painter, Buchberger, with some assistants; a mercantile commissioner, and his secretary. The command of this vessel was given to lieutenant-colonel Agurti. The Austrian mineralogist Pohl, and the animal painter Frick, were to make the voyage on board a Portuguese vessel. Count Von Wrbna was to proceed from London to Brazil, to bring thither the first news of the celebration of the marriage by proxy. The two frigates were ordered to sail in company to Gibraltar, there to wait for the Archduchess; who, with her retinue and the embassy, was to embark on board a Portuguese squadron ordered to Leghorn. As soon as all the travellers were on board, and the preparations entirely completed, the governor of Triest visited the two frigates, each of which had forty-four guns, and a crew of 260 men, inspected the crews and the cargoes, and then, with the most ardent wishes for a happy voyage, and amidst the thunder of artillery, took his leave.

NOTE TO CHAPTER I.

Aves: *Larus* cyanorhynchus, minutus; *Anas* fuligula, acuta, fusca, Tadorna; *Hæmatopus* ostralegus; *Totanus* ferrugineus; *Numenius* phaeopus, arcuatus; *Ardea* minuta. Pisces: *Squalus* Zygæna, Acanthias, Catulus, centrinus, glaucus, Squatina; *Raja* Torpedo, R. torp. nigromaculata, Rubus, clavata, spec. nova, *trunco subtriangulari, mutico, supra cinerascente, subtus albo, cauda tenui, longissima, inermi, pinna unica supra ad radicem caudæ; Accipenser* Sturio, ruthenus; *Syngnuthus* Acus, Hippocampus; *Lophius* piscatorius; *Muræna* Anguilla; *Uranoscopus* scaber; *Blennius* viviparus; *Cottus* Scorpius; *Scorpæna* horrida; *Zeus* Faber; *Pleuronectes* hippoglossus, maximus, Solen, Flesus; *Sparus* Sargus, auratus; *Scarus* et *Labrus*, div. spec. *Lutianus* Linkii; *Trigla* Cuculus, Hirundo; *Scomber* Thynnus, trachurus; *Mugil*, n. sp. Mollusca: *Loligo* octopus; *Aplysia* depilans, fusca; *Ascidia* mentula, conchylega, n. sp. *vesiculosa, appendicibus numerosis; Thetis* coriacea. Conchyl. Patella sanguinea; *Fissurella* græca; *Murex* Haustellum, Brandaris; *Turbo* rugosus; *Strombus* Pes pelicani; *Turritella* Terebra; *Pholas* costata; *Cardium* rusticum; *Pecten* jacobæum; *Pectunculus* pilosus; *Tellina* Remies; *Arca* Noæ; *Solen* Vagina; *Anomia* Cepa; *Pinna* nobilis, pectinata. Crustacea: *Astacus* marinus, norwegicus; *Mantis* Squilla; *Maja* Squinado; *Cancer* Mœnas, spinifrons; *Dromia* Rumphii; *Portunus* Depurator; *Oniscus* Armadillo, Asellus; *Scorpio* italicus. Insect. Eleutherata: *Scarabæus* stercorarius, sylvaticus, autumnalis; *Sisyphus* Schaefferi; *Copris* lunaris, emarginata; *Oniticellus* flavipes; *Onthophagus* Taurus, austriacus, nuchicornis, Xiphias; *Aphodius* fimetarius, Fossor, Scrutator, fœtens; *Hister* 4-maculatus, politus; *Necrophorus* Vespillo, mortuorum; *Cetonia* florentina, marmorata, obscura, hirta,

aurata; *Trichius* hemipterus; *Carabus* catenatus; *Chlænius* festivus; *Staphylinus* hirtus, olens, erythropterus; *Buprestis* læta; *Cantharis* fusca, melanura, nigricans; *Malachius* æneus, bipunctatus; *Blaps* obtusa, spinimana; *Tenebrio* obscura; *Rhingites* populi; *Curculio* cribrosus, sulcirostris; *Pachygaster* goerzensis, gemmatus; *Cerambyx* moschatus; *Lamia* funesta, tristis; *Callidium* luridum; *Dorcadion* pedestre, rufipes; *Donacia* semicuprea; *Galleruca* rustica; *Chrysomela* ænea, Adonides, populi, coriaria; *Clythra* longimana; *Panagæus* Crux major; *Cryptocephalus* auritus. RHYNGOTA: *Ligaeus* equestris, apterus; *Coreus* marginatus; *Cydnus* violaceus; *Cimex* brassicæ; *Cercopis* fasciata, sanguinolenta; *Parnops*, carnea. VERM. ANNUL.: *Aphrodite* aculeata; *Holothuria* pendactes, elegans. ASTEROID.: *Asterias* aurantiaca, membranacea, rubra; *Ophiurus* ciliatus, Caput Medusæ; *Echinus* edulis. ZOOPHYTA: *Medusa*, *Actinia*, div. sp.; *Alcyon* exos, Ficus, pulmonarius; *Spongia* cannabina. PLANTÆ MARINÆ: *Fucus* vesiculosus, L. et var. spiralis, L., obtusus, Turn. mucronatus, T., ovalis, T., ericoides, T.; *Sphærococcus* Teedii; *Chondrus* crispus, laceratus; *Zonaria* Pavonia; *Ulva* purpurea; *Lactuca* Linza; *Cystoseira* (Halidrys Lyngb.) siliquosa, Ag., Hoppii, Ag., ericoides, Ag.; *Sporochnus* rhizodes, Ag.; *Plocamium* coccineum; *Gelidium* pinnatifidium, gigartinum; *Gigartina* plicata, purpurascens; *Scytosiphon* fistulosus, compressus; *Cladostephus* hirsutus, verticillatus; *Sphacelaria* aciculata, scoparia; *Hutchinsia* violacea, stricta; *Ceramium* elongatum, rubrum, diaphanum, ciliatum; *Callithamnion* coccineum, fruticulosum, corymbosum; *Ectocarpus* siliquosus; *Conferva* fructa. (The greater part determined after Lyngbye; a few after Agardh.)

CHAPTER II.

DEPARTURE FROM TRIEST. — VOYAGE IN THE ADRIATIC AND THE MEDITERRANEAN TO GIBRALTAR.

On the 10th of April, at two o'clock in the morning, our vessels weighed anchor, and in the silent darkness of the night quitted the harbour. The sea was calm; and the wind blowing moderately from the north, we made four or five Italian marine miles in an hour. When the company met on deck at sun-rise, the mountains of Friaul were already visible in the hazy distance. The greater part of our company, who had never been at sea before, remained on deck the whole day, and in the mingled feeling of regret and pleasure, which the departure from home excites, fixed their eyes on their native land, as it seemed gradually to recede from their view, till the increasing motion of the ship, and the raw cold wind that swept towards evening over the darkening surface of the sea, compelled the greater number to retire to the cabin. The night passed over quietly; but in the morning we were all awakened from our sleep by an uncommonly violent motion of the ship. Those whom sea-sickness had not rendered insensible,

readily perceived, from the tossing, cracking, and rolling of the ship, which struggled with the foaming sea, — from the creaking of the masts, the roaring of the wind, the cries of the sailors running backwards and forwards, and the whistling of the boatswain's pipes, that we were in a great storm.

The Bora, a cold, very violent north-east wind, which, especially in spring, frequently blows from the Istrian mountains, and prevails in the northern part of the Adriatic sea, had suddenly assailed the two ships. A black cloud, hanging very low, was the only indication that the officer on duty had of the approach of the gale ; so that there was scarcely time to take in the sails. In a few minutes we lost sight of the Augusta, which hitherto had kept at a small distance from us. A thick fog enveloped our ship ; a cold rain, mixed with hailstones, which the storm furiously drove before it, covered the deck with pieces of ice of considerable size, and almost froze the crew. The ship was tossed violently ; the yards and tackle were torn and broken ; the waves rushed through the window into the forecastle, partly filled the hold with water ; and at last, when the storm was at its height, the bowsprit broke short off. The hurricane raged with the utmost fury till noon, when the sea grew calmer, and the bleak Bora being succeeded by a mild east wind, we cast anchor in the middle of the sea, about three miles to the west of Rovigno. In this situation we awaited the break

of day, all hands being meantime busily employed in repairing the damage that had been done, especially among the cordage, which had suffered by the breaking of the bowsprit. The fine library of Baron Von Neveu was overflowed by the waves, which had beat in the windows of the great cabin, and almost all the travellers had sustained some damage by this furious storm; yet, being now in safety, we were less concerned about our own misfortunes than about the fate of our consort. The passengers, to whom this first trial had been very severe, gradually assembled on the deck, where the view of the great damage so suddenly occasioned, and of the exhausted crew, who were benumbed with cold, completed the impression of the extent of the danger from which we had so providentially escaped.

The gloomy sky having cleared up a little, the ship began to proceed slowly towards the south-east. At noon we descried the arid coasts of Istria, on which the sun, just then breaking from the clouds, threw a light strongly contrasted with the darkness of the other parts of the scene. At this moment no sight could be more welcome to us, than that of what might be called a part of our own country. We sailed past the little islands covered with the olive and phillyrea, which lie at the entrance of the harbour of Pola, and anchored near the town. The passengers went on shore the same evening to enjoy the sight of the fine Roman

antiquities which render this country so interesting. The greatest ornament of this poor little town, which contains scarcely a thousand inhabitants, (though in the time of the Romans it ranked next to Ægida now, Capo d'Istria, the most important place in Istria,) is the circus. It has three stories, each of seventy-two arches, and is one of the best preserved monuments of this kind, which is principally owing to the material of which it is built; a solid, fine-grained limestone. The temple, which the city of Pola dedicated to Rome, under Cæsar Augustus, in a chaste and noble style, with a propylæum of the Corinthian order, is not so well preserved. The porta aurea, a triumphal arch, with columns of the Corinthian order, now serves as a gate to the town.* The Venetians, after they had separated Pola, and many other seaport towns of Istria and Dalmatia, from the dominions of the kings of Hungary, erected a fort here, with four bastions, which, however, is now in ruins. From it there is a fine view of the harbour with its verdant islands, of the town and the colossal amphitheatre, which rises above pleasant groves of olives and laurels.

While our frigate was under repair, we had leisure to make several excursions in the environs of

* Voyage pittoresque et historique de l'Istrie et Dalmatie, rédigé d'après l'itinéraire de L. F. Cassas, par Joseph Lavallée. Paris, 1802. fol.

Pola, which made us better acquainted with the interesting peninsula of Istria. The mountains, which run from north to south, consist, like the other parts of the country, of floetz lime-stone, and are of the same formation as the *Karst*, that desolate ridge of mountains, remarkable for its rugged clefts, which runs, several leagues in breadth, from the district of Gorz, in the direction from W. N. W. to E. S. E., to the shores of the gulf of Fiume, and thence southwards to Croatia. Large and small caverns and vesicular cavities, holes, and ravines, which frequently give the mountain the appearance of having been washed by the rains; petrifications, such as *Ammonites*, *Gryphites*, *Terebratulites*, which, however, are not so common in the Istrian peninsula as on the continent, and in the islands of the Golfo di Quarnero, a compact fine grain, large conchoidal fracture fragments, indeterminately angular and sharp-edged, absence of metal, and a whitish-yellow or reddish-grey colour, characterise this lime-stone, which constitutes the chief formation, not only of the peninsula, but of all the islands in the gulf of Quarnero, and of the mountain chain in the north of Croatia. It is said that there are in the peninsula, especially in the northern part, several large caverns which have never been explored, an accurate investigation of which might afford interesting results respecting the fossile remains of animals found in the islands of Osero and Cherso, and still

more abundantly in Croatia. About Pola itself the limestone is without those fossile bones, indeed almost without petrifications; and towards the sea, where it is inhabited and perforated by innumerable mytili, frequently shews almost horizontal strata from two to three feet thick. In general, only a little mould lies over it. In former times, the great stone quarries of Pola and Pirano furnished materials for building the proud palaces of Venice.

The vegetation of this dry and rocky soil is by no means luxuriant. The charms of the south European Flora, to which that of Istria belongs, do not consist in those thick and lofty forests, those verdant pastures and rich meadows, that distinguish the north. On the contrary, we are surprised at the nakedness of the hills, and of the plains, destitute of trees, with hardly any thing growing on them but juiceless shrubs; and, lastly, by the want of general cultivation. The *Phillyrea latifolia*, *Erica arborea*, *Buxus sempervirens*, *Cistus Ledon*, *C. salvifolius*, *Juniperus Oxycedrus*, *Pistacia lentiscus*, *Smilax* and *Arbutus Unedo*, form low, shadowless, dry clumps, which cannot bear a comparison even with our dry pine forests; but the many plantations of olives and laurels have an appearance of softness and lustre, which corresponds with the mildness and transparency of a southern climate. This great transparency, and the beautiful azure of the sky, were observed by us with pleasure in some sun-shiny days during our stay, as infallible indi-

cations of more favourable weather, and of the approach of spring; some of the harbingers of which, belonging to the vegetable kingdom, were already in full bloom; such as *Anemone hortensis*, *Parietaria judaica*, *Plantago subulata* and *Coronopus*, *Ornithogalum umbellatum*, *Muscari comosum* and *racemosum*, *Ixia Bulbocodium*, *Ranunculus muricatus* and *parviflorus*, and some others. The season being still so cold, hardly any animals were to be found except a *Testacella Europæa*, the *Scorpio Italicus*, and the more common marine animals, such as *Aplysia depilans*, *Holothuria elegans*, some fish and medusæ.

The meteorological phenomena here were not very different from those observed at Triest. The barometer was at 27° 11′: Reaumur's thermometer in the air was, in the morning, never above 8°; at noon, 10°—11°; in the evening, 6°—7°: in the water, in the morning, 8°—9°; at noon, 9°—10°; in the evening, 8° to 8° 5′. The specific gravity of the sea water was 1.0372. The whalebone hygrometer stood between 39° and 48°.

The naval officer, who had been sent from Pola to Venice, to bring a new bowsprit from the arsenal, and make inquiry respecting the fate of our consort, the frigate Augusta, of which we could obtain no information on the solitary coast of Istria, returned in a few days, with the bowsprit, and the news that the Augusta, after losing all her masts, sails, and boats, had sought shelter in the island of

Chioggia, and would in all probability be obliged to go from that place to Venice, in order to repair in the arsenal of that city the great damage she had sustained, which was estimated at twenty thousand francs. The bowsprit was soon put up, and on the seventh day the Austria was again ready to sail. The embassy, therefore, resolved to proceed to Gibraltar alone, and there to wait both the Augusta frigate and the royal Portuguese squadron, as well as further instructions from the imperial court of Vienna.

On the 21st of April, at six o'clock in the morning, we weighed anchor, and left the harbour of Pola with a faint east-north-east wind. By the time it was broad daylight we were in the open sea. The horizon was covered with thin white clouds, but the sky in the zenith was of the purest azure, and we indulged in the most pleasing hopes as a faint but favourable wind conveyed us to the entrance of the Golfo di Quarnero. About ten o'clock in the morning we had the south east point of Istria before us, about ten leagues distant. We took a last look of the Monte Maggiore, the highest mountain in the peninsula, the summit of which had been covered with snow on the day of the storm, and was not yet free from it. When we had doubled this southermost promontory, the high mountains behind Fiume rose in the distant back ground to the north, and before us Il Monte d'Osero, a steep barren limestone chain, which