

ENVIRONMENTAL ADJUSTMENTS IN THE VALLEY OF THE LOWER RHONE

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In southern France lies an area which plays an important rôle in the industry and commerce of the country and which presents an interesting example of man's adjustment to and capitalization of his environment. It is roughly triangular in shape with Valence at its vertex and the Mediterranean Sea its base, the Cevennes Escarpment of the Massif Central on its west, the Pre-Alps on its east, and the mighty Rhone River cutting through it from north to south.

At the southern edge lies Marseille, the second city of France and the country's leading port. It was here that a trade began as early as 600 B. C. which has risen and fallen with political tides but which has steadily grown until in modern times it bears every evidence of permanence. The Rhone Valley was known to Phoenician traders before 600 B. C. and doubtless the Greek mariners who founded Massalia, now Marseille, were not able to do so without some conflict with the earlier settlers. The Romans, eager to gain a foothold in Gaul, formed an alliance with the inhabitants of Massalia whereby they offered protection against native raids; such protection necessitated the landing of an army on the left bank of the Rhone. Roman rule continued for four centuries.

The history of civilization in Mediterranean lands has been concentration, expansion, collapse. Concentration meant adaptation to local conditions of climate, soil, and topography. Expansion followed the accumulation of wealth and power. Barriers of relief prevented expansion by land, but there remained the entire Mediterranean, almost any shore of which furnished a new area similar in character to the homeland. And Phoenicians, Greeks, and Romans had the advantage of dealing with a distinct climate, definitely limited in its distribution. Collapse came about, as one author states, "because of the impossibility of checking divergent evolution at the periphery."

Climate was the foremost environmental factor in the settlement of the Lower Rhone Valley. Except around the Mediterranean Sea, areas with Mediterranean climate are small and have not been favorable to

the development of civilization. But Mediterranean lands possess a strikingly uniform climate and it is this fact which has a significant bearing upon the migration of Mediterranean peoples. Here are groups of people who have exhausted their immediate environment; a short sea journey will bring them to an undeveloped area very much like home. The Romans themselves never went beyond the climatic barrier—they ruled the upper valley but never occupied it.

Physically, three subdivisions of the Lower Rhone Valley may be recognized, (1) the alluvial plains of Languedoc west of the Rhone, which produce one-third of the wine of France, (2) a part of Provence which lies east of the Rhone, and (3) the Delta between (1) and (2) which is flat and swampy in places and sandy, dusty, and barren in others. East of the Rhone lies the dry platform of La Crau, composed of gravels brought down by Durance River. West of the Rhone lies the swampy, uninhabited, unhealthful area of Camarque, a deltaic island formed by the silting up of the lagoons and salt marshes along the shore.

Marseille is located in Provence. It was founded nearest the Rhone where the advantages of the Rhone existed, but where the disadvantages of the delta were not felt. It is situated on the Golfe du Lion which is open to the west; to the east it is bounded by an amphitheatre of hills. The city itself is on undulating ground.

The question naturally arises—why has Marseille remained a vital trading center while other cities nearby rose and sank into oblivion? It suffered many vicissitudes as a result of political and clerical warfare. The Crusades temporarily increased its trade, for it was a convenient place to outfit an expedition, but its chief trade was with ports on the Mediterranean and in the East. During the Middle Ages, Pisa, Venice, and Genoa offered keen competition, and the trade of Marseille declined. Discoveries at the end of the fifteenth century caused trade to face west instead of east, and trade with the East went by sea around the Cape.

The opening of the Suez Canal in 1869 began a new era of commerce for ports on the Mediterranean. Before its construction there was no direct water communication between the Mediterranean and the Red Sea but after its completion Cape traffic was diverted through it and now mail boats from London to India and Australia call at Marseille.

The extension of French influence in North Africa has been of great importance. There is a constant effort on the part of the French to develop French Equatorial Africa with its wealth of resources and

the construction of the Transsaharan Railway will aid greatly in the growth of trade with Europe.

In 1902 a canal was built connecting Marseille with the Rhone at Arles. It makes of Marseille a river as well as a sea port, and, in a measure, surmounts the difficulties entailed by the enormous amounts of material deposited by the Rhone at its mouths.

But the chief environmental factor to which Marseille owes its present importance is its location at the southern end of the corridor of the Rhone Valley. This natural gateway is the great historical highway of France, connects the Mediterranean with the northwest of Europe, and serves as a passageway for commerce. Furthermore, there are gaps in the valley walls which enable a branching out from the main route.

The industries of the Lower Rhone Valley are dependent upon the natural factors of soil and climate. The cultivation of the vine on the fertile alluvial plains of Languedoc has already been mentioned. The olive tree with its small, hard, and varnished leaves is protected against evaporation. From the olives comes the oil needed in the large soap manufactories and oil refineries of Marseille and Montpellier, and in the candle making of the latter city. Tobacco thrives in the valley of the Isère where it is protected from the mistral but its quality is inferior. The raw products used in the textile industry which centers about Lyons are grown in the vicinity of Avignon. It was the successful cultivation of the mulberry in this region which gave a start to the silk industry for which France is noted, although today most of the raw material is imported. Iron and steel manufactures are produced at Alais which is located near coal and iron deposits. Bauxite, from which aluminum is manufactured, is mined near les Baux from which it takes its name, and lignite from the region about Marseille is used in the industries of that city. The salt marshes of Etang de Berre are important sources of sea salt.

The length of this paper does not permit further details about the natural resources and industries of the Lower Rhone Valley as a whole. Since the pivot of trade for the area is Marseille, it seems not out of order to describe the port whose modern aspect presents such a striking contrast to its appearance as a trading center of the Middle Ages.

In the first half of the nineteenth century, the port of Marseille consisted of a narrow embayment now called the "Vieux Port." Here boats anchored four deep and were loaded and unloaded by tenders. No provision was made for the supervision and protection of merchandise. Small rooms on ground floors of houses in the vicinity of the port—the number has been estimated at about 1,200—served as ware-

houses. A private company organized in 1856 was in a large measure responsible for the improvement of the port. Today Marseille boasts of modern port facilities with adequate machinery, warehouses, and a capacity for receiving the largest ocean-going vessels.

A concession was granted to the company in 1856 for a term of ninety-nine years from January 1, 1864, the date of the beginning of operations. In order to begin its work as soon as possible after organization, the company purchased land from the city of Marseille on which it conducted its activities until the lands granted by the concession were ready. The city soon realized that the success of the company's efforts meant increased trade and gradually the port was enlarged to its present proportions. That portion not controlled by the company is under the jurisdiction of the Chamber of Commerce of Marseille.

The water area of the docks is approximately 525 acres; the length of quays about 15 miles, and the total area of quays about 267 acres. Warehouses cover more than 100 acres. Improvements under construction or decided upon include enlargement of some of the docks, elongation of the breakwater for better protection against the sea, and reclamation of marshy lands for the use of the port. Projects include three new dry docks, an oil dock, and rearrangement of the general plan of all the docks so that there will be four cells. At present there are only two entrances, one for the Joliette dock, the other for all the other docks through the north outer port. The plan is to have an entrance into each of the four cells.

The equipment includes warehouses with a total capacity of more than 300,000 tons, 172 electric and hydraulic cranes, seven dry docks, a grain elevator which has facilitated the handling of cereals of which the imports are steadily increasing, and a refrigerating warehouse. The docks are provided with 58.5 kilometers of railway tracks.

The canal which connects Marseille with the Rhone has already been referred to. The most interesting feature of this canal is the Rove Tunnel which is cut through limestone for a length of 4.5 miles. It is 72 feet wide, of which 60 are for the canal itself, and along each side of the canal is a foot passage 6 feet wide. The height is 50 feet. The depth of the water in the canal is 13 feet. The volume of material excavated was 2,500,000 cubic meters. The tunnel was begun in 1911 and opened in 1927. It permits the passage of barges carrying from 1,200 to 1,500 tons and even more. It shortens the distance between Marseille and l'Etang de Berre to 18 kilometers and the latter really becomes an auxiliary of the port of Marseille.

The canal from Port-de-Bouc to Martigues is the outer port of l'Etang de Berre. The total length of the quays is 7½ miles; the area is

about one square mile. On the north side are oil and soap works. Caronte is equipped for unloading and serves as a storage place for the coal of the Paris-Lyons-Mediterranean Railway (480,000 tons in 1928).

The opening of l'Etang de Berre to maritime navigation was decided during the war by the Chamber of Commerce. It has an area of about 60 square miles. Ships with a tonnage of from 8,000 to 10,000 can be admitted.

SUMMARY

Early settlers remained in the Valley of the Lower Rhone because there they found a climate to which they were accustomed; the physical environment of the site of Marseille endowed it with advantages superior to those of any other point along the Mediterranean near the Rhone River; and colonization spread into the valley where the soil was fertile and agriculture could be carried on to supplement trading. Marseille persisted primarily because of its position with reference to the Rhone corridor. It owes its present position not only to events outside its control, such as the opening of the Suez Canal and the conquest of French Equatorial Africa, but also to its own progressive conquest of environmental difficulties.