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## NATURAL ENVIRONMENT THEN AND TODAY

Observations made by Stanisław Leszczycki in 1936 focus on three varying natural units: coastal lowlands, the Taurus mountains and the Anatolia Upland. The differences between them are so distinct that they can significantly affect the disparities in the pattern of economy, settlement, and the life style of their inhabitants.

**Coastal lowlands** on the coastline of the Aegean Sea do not form a continuous belt. Mountain ranges in some places reach the shore, forming peninsulas projecting far into the sea. They are interspersed with shallowly indented bays widely opening into the sea, above which stretches of lowlands are situated. Transport by land between the bays (and stretches of coastal lowland) is extremely difficult.

The Western Route of research included a part of the Antalya Lowland, called also the Pamphylia Lowland or the Antalyan Lowland by Leszczycki (both obsolete), and the Eastern one covered the lowland at the mouth of the Göksu Nehri. Miocene-Pliocene molasses can be found in the substratum of both lowlands; occasionally (particularly at the mouth of the Göksu Nehri) overlain with a deep layer of contemporary alluvial deposits. The river systematically builds up the delta land with its wide, flat tongue, reaches further and further into the sea. The ancient harbour of Silifke today lies in the distance of 12 km from the river mouth. Leszczycki rightly points to the occurrence of two distinct levels on the lowland: "*a) the northern belt, wet and steppe in character, is scarcely populated; it lies at about 80 metres above sea level, and slopes southward with a marked step; b) below it, at the height of approximately 25 metres above sea level lies another, fertile, belt. In the vicinity of the river swamps, ponds and stretches of wetland, former habitats of mosquitoes can be found, now they are under reclamation for cotton and rice fields*" [p. 33]. At present, the riverside land has been fully reclaimed and is under extensive agricultural exploitation, whereas the higher plane, with stony and infertile soil (Tertiary mollasses on the surface), remains hardly used for farming purposes; we came across a number of deserted fields. The vegetation is extremely poor, made up of grass and low, thorny xerophytes. Occasionally, the bare ground will appear. This is not a natural steppe, but the result of forest and scrub forma-

tions decline for many centuries. In places more difficult to access, even today shrubs can be found, while forests regenerate well in artificial planting locations.

The Antalya Lowland also rises in a series of well-marked steps, testifying to young uplifts. Rivulets flowing down from the mountains form rapids and water gaps. Contemporary cliffed and rugged shoreline marks the lowest step of the lowland.

Coastal lowlands have subtropical maritime wet climate (Mediterranean) and, being sheltered from the wind, enjoy an exceptionally warm winter season. The growing of melons, watermelons, and even bananas, has found favourable conditions. The development of agriculture is also facilitated by good soil (particularly those formed on marl and alluvial deposits). Owing to the use of the waters of the streams flowing down from the mountains, artificial irrigation has developed; it is absolutely indispensable in the summer, with virtually no rainfall. For this reason the lowland, which now constitutes the agricultural base for the coastal resorts, is now extensively exploited, to a larger degree than the slightly warmer Silifke Lowland. The Antalya region practically lacks any natural vegetation.

Formed during the Alpine orogeny, the **Taurus mountains** are a strongly varied region. Although the main intensity of the mountain-folding movements took place in the Eocene and Oligocene periods, the tectonic activity has not finished until today, which is borne out by such phenomena as earthquakes and tremors, occurring quite frequently in this region. The Western Route crosses the Western Taurus, while the Eastern one — the Central Taurus.

The Western Taurus (Bati Toroslar) is divided into a number of chains and plateaux. The Bey Dağları (3070 m a.s.l.), which runs SW-NE is the highest coastal chain. Among the peaks, wide valleys and large basins are situated, with lakes of tectonic origin. In the north, in the vicinity of Burdur and Dinar, the pattern of relief becomes chaotic. The biggest freshwater lakes (Eğridir and Beyşehir) lay east of Leszczycki's route. However, he was able to visit villages near the salt (and in reality bitter) lake Burdur. Transport between the basins is difficult even today, especially between Burdur and Isparta. Dwellers of some basins have for centuries lived in utter isolation from the outside world.

The Central Taurus (Orta Toroslar) consists of almost parallel mountain chains. Leszczycki's research covered the main mountain range, exceeding 2000 metres above sea level in the area of the research (the highest peaks of this range, located further east, exceed 3500 m a.s.l.) and the eastern slopes of the southern Akçalı Dağları (2339 m a.s.l. in the west, merely about 1000 m a.s.l. in the research area). Between them lies the large depression of Mut. The research concentrated on the Göksu Nehri valley and its proximity. The valley has water gaps in many of its stretches; it is narrow, with steep slopes, occasionally formed by limestone precipices. Also valleys of the tributaries of the main river are deeply indented. Considerably indented forms can be found in the northern part of the main

range. The road from Mut to Karaman crosses the range at the pass at an altitude of 1610 metres, and then gently, almost imperceptibly descends towards the Anatolia Upland.

The lithology of the Taurus is similarly varied, which is largely due to a large share of limestone, occurring almost everywhere, and forming vast tableland, various sandstone and shale often creating typical flysch, and conglomerates in depressions, or loose gravel or sand. Typical carst relief can be observed in the lime rock, there are many caves and rising springs.

The climate of the mountain areas is varied. Compared with the coast, it is characterised by lowering of temperature proportional to the increase in height, and the northward and eastward direction of rainfall. In Burdur, lying 967 metres above sea level, the average precipitation amounts to 438 mm (FAO; Leszczycki — 394 mm). The distribution of rainfall is more even on the coast, where summer droughts are frequent. The months with lowest rainfall are August (6 mm) and July (9 mm). It should be observed, however, that in Silifke, with precipitation higher by 50 per cent, the average precipitation for July and August is only 1 mm, while for Antalya, with precipitation is two times as high, it is only 2 mm. This demonstrates that summer droughts in the mountains are less acute than on the coast. The average annual temperature in Burdur is 13.2°C (in Antalya 18.6°C, and 19.1°C in Silifke). The winters are distinctly cool, the average temperature for January being only 2.3°C. The average minimum temperature falls below 0°C in January and February (respectively -0.8°C and -0.1°C.) Increasing continental features of the climate are also reflected in greater annual amplitudes: for Burdur they are 21.8°C, for Antalya — 18.1°C, and for Silifke, even though it is not situated directly on the sea, they are only 17.8°C.

The Taurus' natural vegetation used to be forests, mainly oak forests with the prevalence of *Quercus coccifera* in the lower strata and pine forests with *Pinus brutia*, and *Pinus nigra* in the higher parts, and above them, in damper areas, there used to grow fir and cedar forests with *Abies cilicica* and *Cedrus libanotica*, interspersed on drier areas with various species of juniper. The highest peaks were occupied by high mountain meadows. However, in his times Leszczycki could only describe pine forests, although he also mentioned oak forests. Nowadays cedar forests can be found solely in the Eastern Taurus.

In 1997, we were able to spot oak forests primarily in the vicinity of Burdur, and pine forests more to the south, at the foot of the Western Taurus and in the Silifke area (intensive timber exploitation). In some cases, forests grew in the same location as described by Leszczycki. Undoubtedly, it was mostly military supervision (testing areas etc.) which prevented their decline. Oak forests in the vicinity of villages were strongly degraded, to the macchia, or even garrigue state due to goat and sheep grazing and fuel timber exploitation. Although many of the villagers claimed that hard coal was the basic fuel (for instance, in the ancient Eber they claimed it made up 90% of fuel), and water tanks heated by the sun

could be visible on the roofs of many houses, the facts remains that oak timber is still used. In the same Eber, there were piles of oak roots and branches intended as fuel timber in front of every farmstead.

Fires also constitute a threat to the forests. We could see fresh fire sites in the Central Taurus forests, about 50 km west of Silifke. It should be borne in mind, however, that fires in Mediterranean forests are partly natural, and to some extent regulate the natural succession of vegetation. *Pinus brutia*, due to the lack of light is not reproduced under the oak macchia shrubbery; it grows only following a fire. For this reason, its forest stands are almost even-aged. We could observe even-aged tree stands in many places on the eastern slopes of the Taurus. In the case of younger forests, it is probably largely due to the large-scale programme of mountain afforestation carried out by the Turkish government, while with regard to older forests it seems to be primarily the result of fires.

**The Anatolian Upland** is situated north of the Taurus. No research was done there. Only the village of Gökçe near Karaman can be regarded as lying in this region. The village itself is situated in the area with various types of erosional dissection, while the neighbouring fields lie on an slightly undulating plateau. It should be pointed out, however, that the accurate delimitation of the Taurus and the Anatolian Upland boundaries is very difficult in this region.

In the substratum of the Anatolian Upland old crysstalline massifs can be found, horizontally overlain by dipping sedimentary rock (Tertiary limestone, marl, clays, silt, sandstone, gravel etc.). In many places (e.g. between Karaman and Konya), cones of extinct volacones can be seen, along with tuff and other kinds of volcanic rock.

The Anatolian Upland has dry subtropical continental climate. In Konya (1032 metres above sea level), the average annual precipitation amounts to 315 mm (in Karaman, 1025 metres above sea level, it is 344 mm). Although most of rainfall is received during the winter half-year, and July and August are the driest months, otherwise the distribution of rainfall is relatively even. Konya receives most rainfall in May, and Karaman in December. The climate is distinctly colder than even in Burdur, situated at almost the same latitude and altitude. In Karaman, the average annual temperature is only 11.8°C (in July 22.8°C, and January 1.3°C), and the amplitude is also identical to the one of Burdur: 21.5°C. Ground frost, and even frost, often occurs in winter: the average minimum temperature for January is — 3.3°C, and —2.2°C for February. Konya is even colder, with minus annual air temperature in January (—0.2°C) and minus annual average minimum temperature from December till the end of March (—4.5°C in January).

In these conditions, arid Mediterranean steppe is the dominant type of vegetation — green in spring and dry in summer. Nowadays it has largely been converted to farming land, and strongly degraded in the other areas due to intensive grazing. However, the successes of the afforestation programme conducted by the Turkish government (e.g. with pine trees) indicate that originally light pine forests could grow in this area.