

**Chemical Education
and
Industry in Turkey**

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Until late 18th century higher education in Turkey (Ottoman Empire) was in Theological schools (Medrese).

In 1734 the first Math. And Geometry school was founded, high school (Idadi) graduates were accepted in this higher education in later years 1774 a Naval Engineering school and in 1795 a Civil Engineering school was started

The first University (Darul-funun)(Gate of Sciences) was opened in Istanbul (Capital city of Ottoman empire) in 1915. Professors from Germany and Austria were invited, some of them F. Arndt, von Hosch, Fester and others. Actually these people were young assistant professors, but they were good and of course enough for the very new university education in Ottoman Empire.

The University system has three stages in Turkish Republic.

- 1- From 1915 until 1933**
- 2- From 1933 until 1981**
- 3- From 1981 to day**

During the first period, the professors were without a doctorate degree, that is one may or may not have the degree. Research was not a compulsory thing, if one enjoys to do research he may do so, but if not, giving lectures and having examinations, teaching lab. experiments were enough.

The second period started in the 10th year of young republic. Almost a revolution was done in the University system (only one University in all Turkey at the time). In this period hundreds of young students boys and girls graduated from high schools (lycee in Turkey) were selected after examination and were sent to Germany (mostly), France, Italy (especially to study Latin Law and Art), some to England and rather rare to USA.

During 1930's until 1950 quite a number of Jewish-German professors came to Turkey by the invitation Turkish government. We were most lucky to have these world wide known wonderful scientist in Medicine, Chemistry, Physics, Law etc.

Our students in Europa after completing their educations and many of them getting their doctorates came back and started to work with these professors. Due to the economic problems of the war there was not much but definitely some research going on, in the five Universities of Turkey.

After 1960 in this second period a jump in the scientific life has started. Many university graduates from all fields went to American Universities for master's and doctorate degrees, many of them stay in USA but some came back home bringing with them their highly sophisticated research knowledge. So things were going very good until students unrest in 1968 as other countries in the world. But in 1980 a military group took over the country and they thought the universities of the country were responsible from student uprising (at that time there were 18 universities)

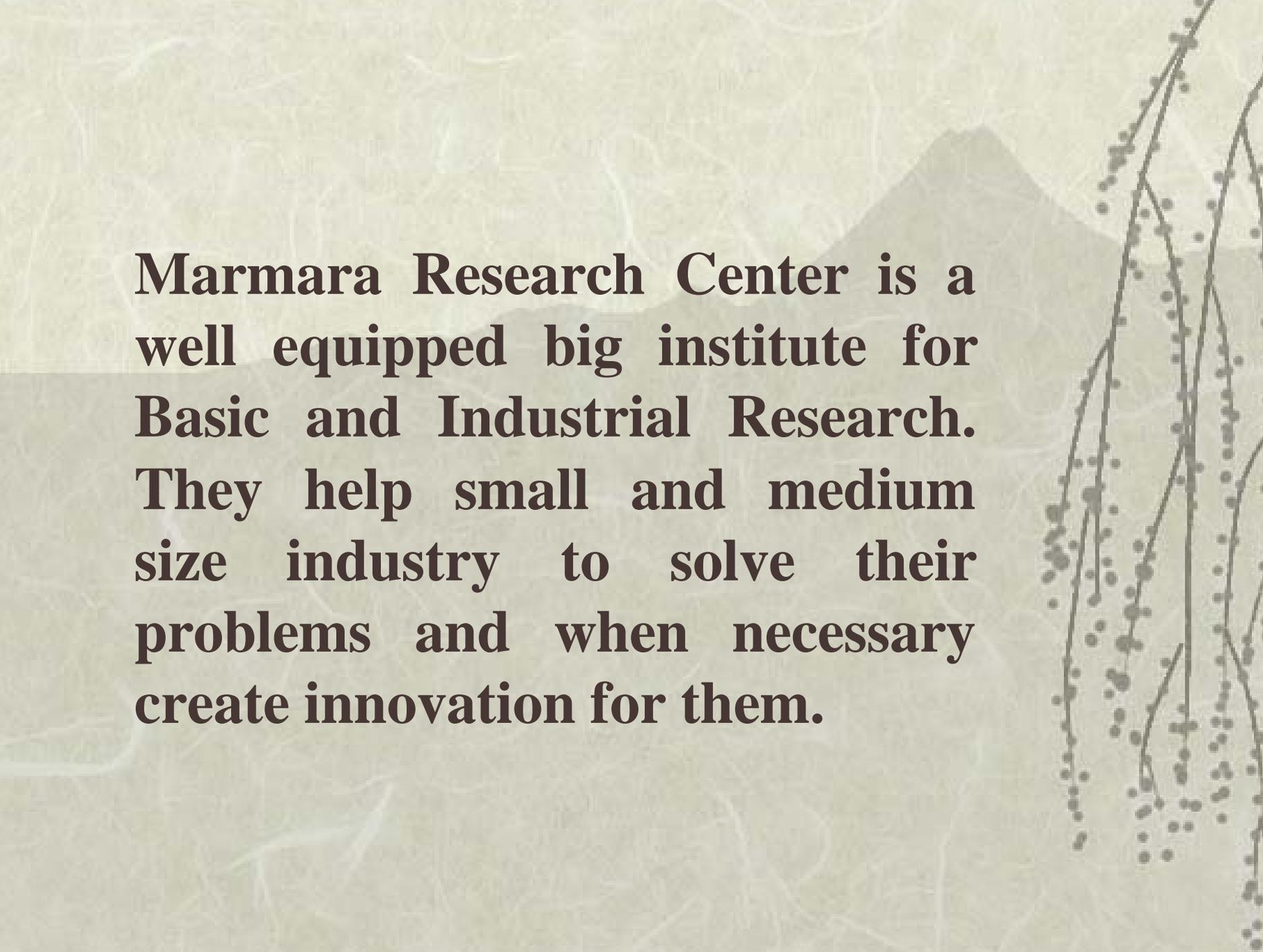
The third period started at this time (Higher Education Council) YÖK was formed. The Academic freedom are lost. According to this new university law the University Presidents had a lot of rights, also the Deans of the Faculties, of course this mostly depends on the personalities of these people, some knew that this is for a short period and will pass, so they acted as if there was Academic freedom. And this period has passed after a while things normalized.

Yet some good rules and some organizations remained, especially (University Research Funds) help to provide money to those who wants to do research on project basis. When one publishes in SCI journals it helps his or her promotion, actually one must have certain number of papers in SCI journals in order to promote to assistant, associate or full professorship.

Partly because of this system, partly due to competition between the young scientist or to be invited to better universities. Turkey has elevated to 22nd place with 9321 publications in 2002, compared to 46th place with 250 publication in 1981, in SCI journals.

Checking the number of the first 3 months the publications will reach to 12000 in 2003. Of course above given numbers only shows SCI covered journals. In other journals either in Turkey or outside of Turkey there are twice as much publication.

In 1960 another important step took place in the scientific life in Turkey that is the formation of TUBITAK “Scientific and Research Council of Turkey” in Ankara, its branch “Marmara Research Center” has founded near Istanbul in 1963. The main office in Ankara supports the basic and /or applied Research done at the Universities on project basis. There are 7 different groups studying the projects. Some projects such as: Information technology, Genetic, High Technological Materials, Biotechnology, Molecular biology, Environment, University-Industry relations, Innovation and so on are priority projects.



Marmara Research Center is a well equipped big institute for Basic and Industrial Research. They help small and medium size industry to solve their problems and when necessary create innovation for them.

Another important date for Turkish Scientific life is the foundation of “Turkish Academy of Sciences” in 1993. Although the Academy is very young, it started with enthusiasm already having some important projects in Social and Scientific fields. A generous grant for young scientists, not only to help their present research but also to select among them the future members of the academy. Grants to young doctorate students, rewards, and also a very important project started during the last two years and perhaps it will go on many more years

“The cultural inventory of Turkey”. Already started in four locations two small town in Eastern and two in Western sections of the country. It covers Archaeology, Ethnography, History, Architecture, Ethnobotany etc. fields. Also Turkish Academy of Sciences joined Allea (European Academies Assambly), and having good relations with all the academies of neighbouring countries, and many others.

As for the Chemical Industry of Turkey, it is very new, although the first Cement plant was started in 1911 in a small town near Istanbul and there were some silk and cotton mills, most of the production was done in small mills in the houses during Ottoman Empire

Turkish Republic (founded in 1923) knowing the lack of capital and more important knowledge in the hands of private sector, has started to build up the basic industrial plants in the country. Sugar plants using the sugar beats has started with one factory, reached to four within a few years and now more than 30, cement factories, paper mills, material factories for cotton and woolen materials, silk weaving was rather famous in the empire, so these small industries were turned to factories.

After 1950's with the formation of multi-party regime, private sector has entered the industry by the financial aid of government and with the foreign capital. Although heavy industry still needed big money so the State started the petroleum-chemical industry, we have four units now and all in the verge to be privatized.

Pharmaceutical industry has started first by Turkish private groups later important world groups entered the market, now we have a rather good pharmaceutical industry exporting and also opening plants in some countries in Africa, Russia and some other ex-Soviet countries.

Of course two main minerals of Turkey are Chromium and Boron both of them are being worked up, and most of the production is exported. We do not produce some strategic bor compounds due to international reasons. Many other household goods are in the hands of private people, glass factories were opened first in 1935 since then they progressed a lot Turkey exports glassware all around the world from window panels to crystal ware.

The idea to develop new technologies is rather new for our private sector, they used to buy know-how, but at the door of EG we now know the value of it, during the last years we are trying to develop new technologies, already we have 3 techno-parks for small industry for new technologies, the first opened by Tubitak-Gebze, second also in Istanbul in Technical University, and the third is in Ankara in the Middle East Technical University.

There is an important work going on to make a jump in Industry and Science until 2023, the 100 birthday celebration of Turkish Republic.





**The Ottoman Empire
Under Suleiman I
the Magnificent,
1580**

200 Miles







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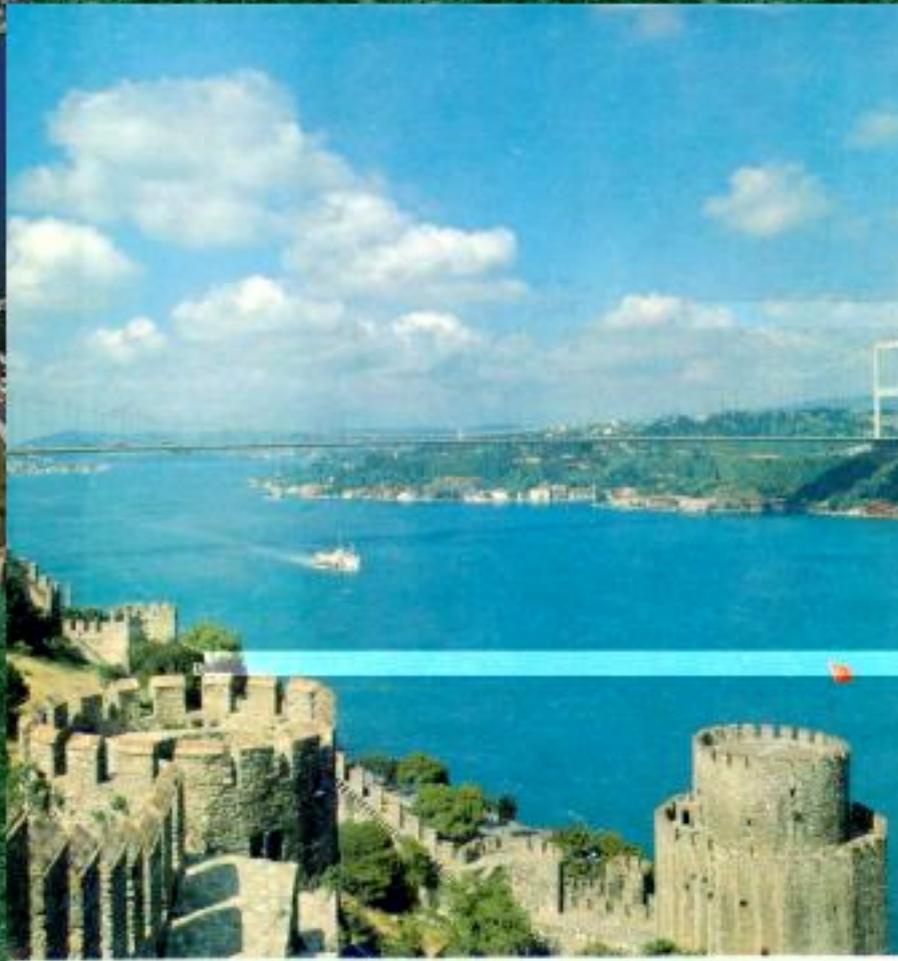
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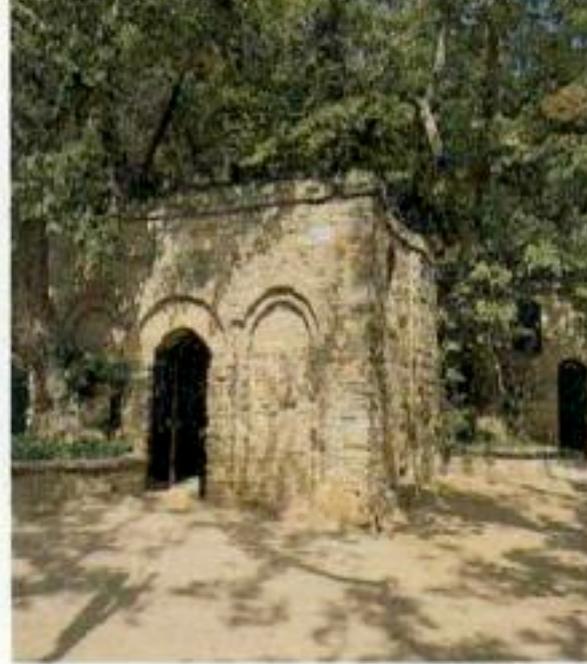
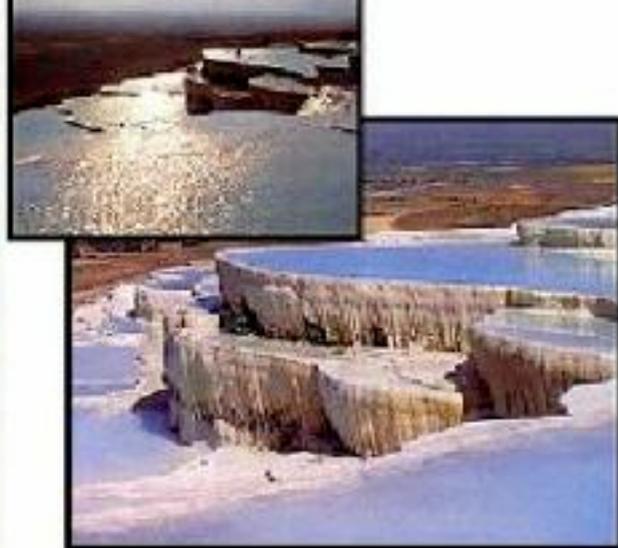
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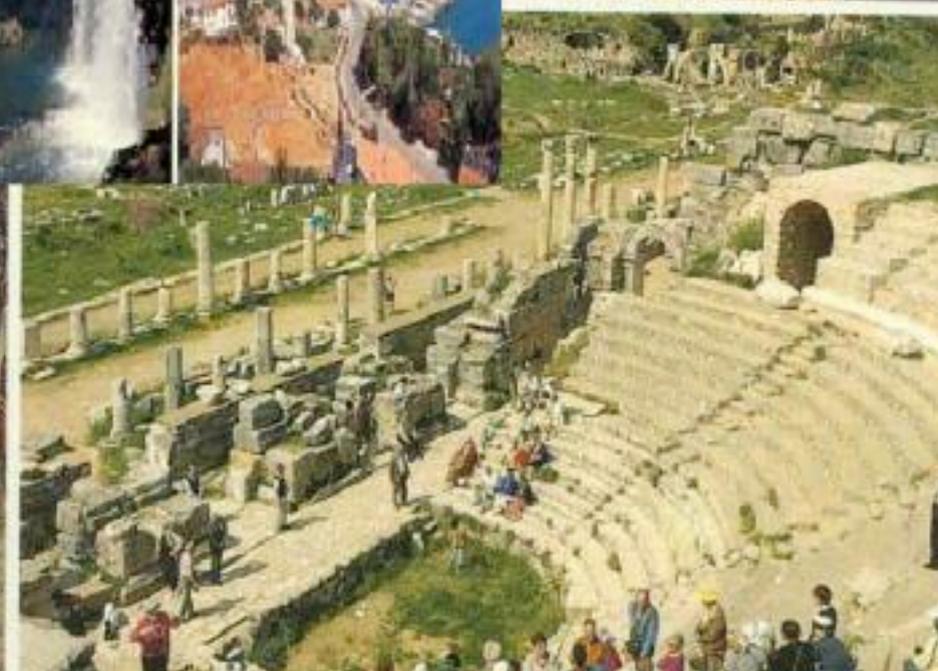
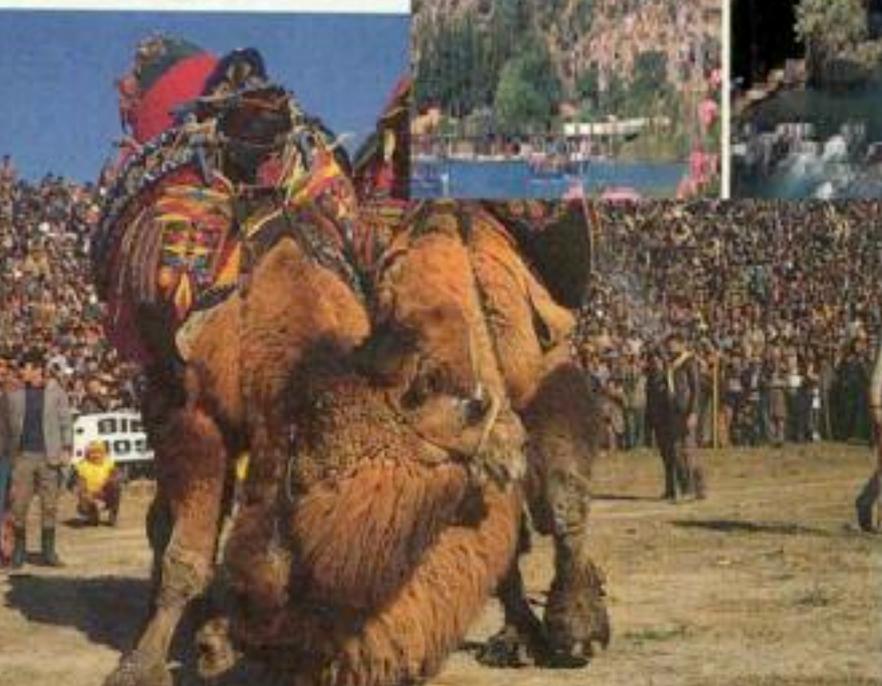
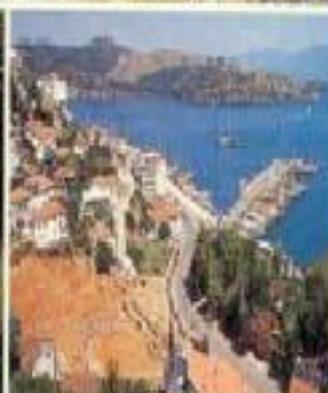
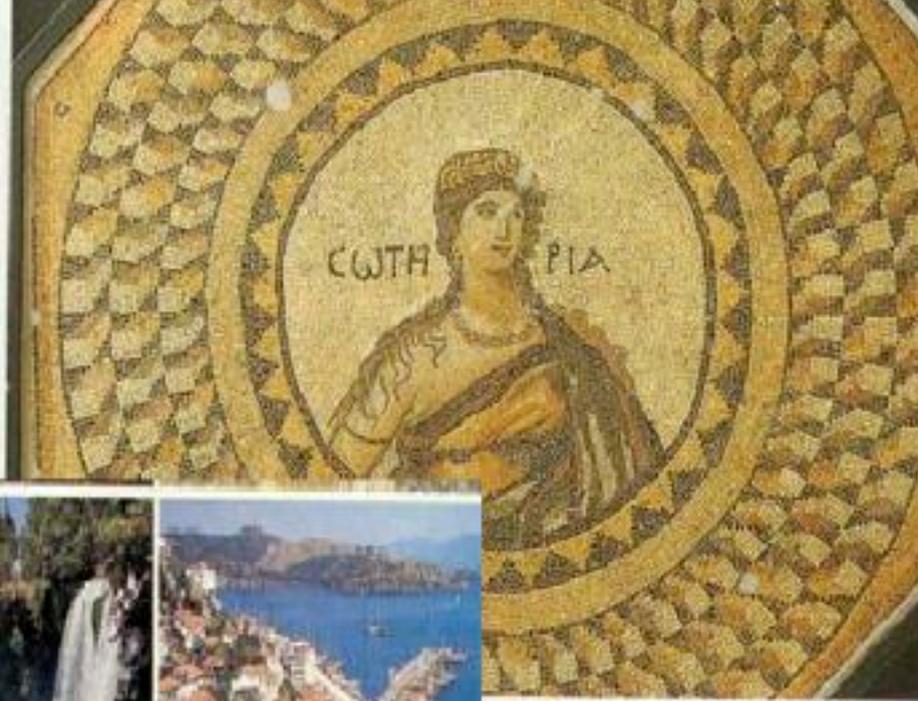
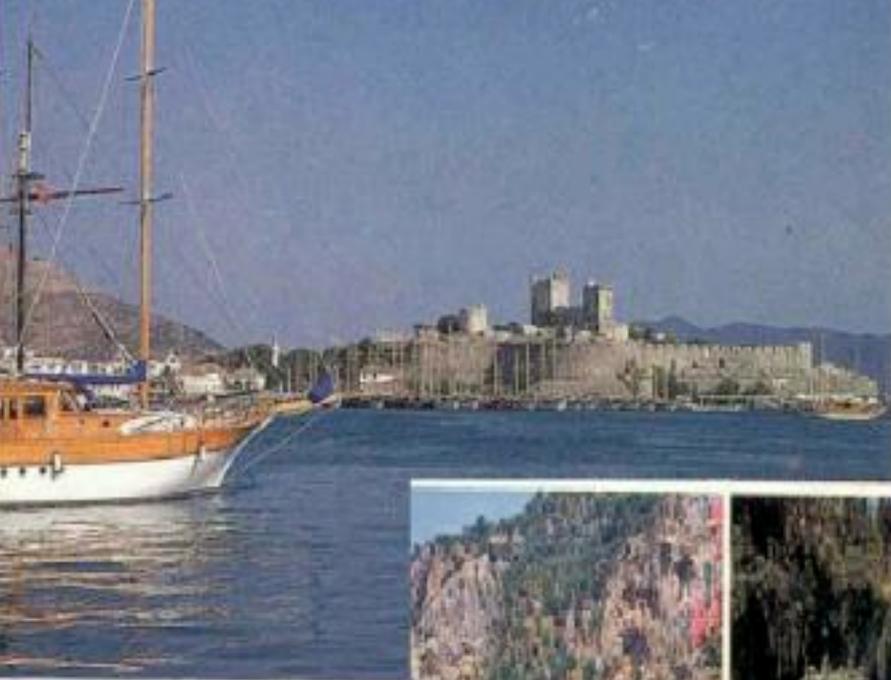


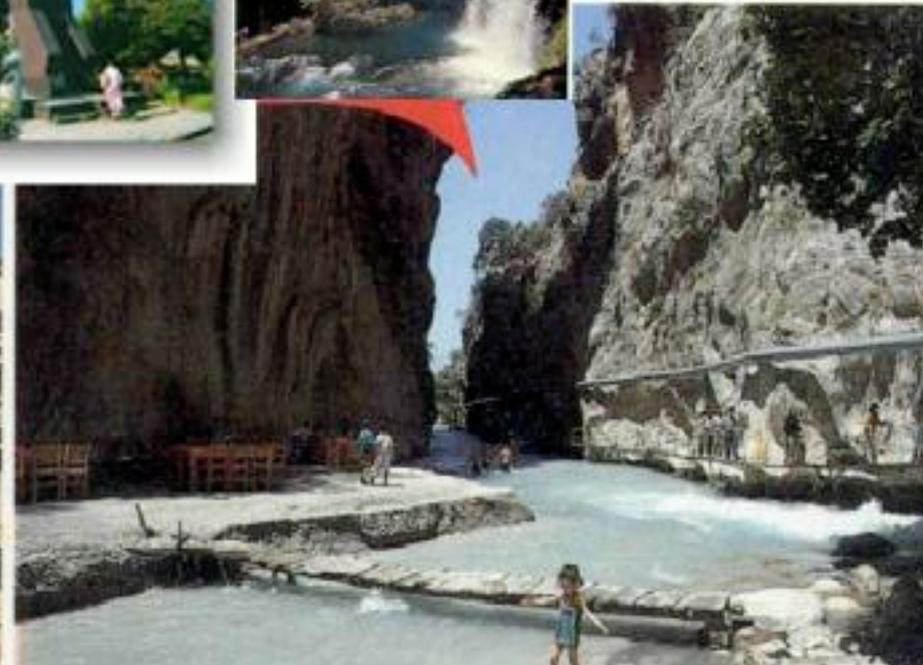
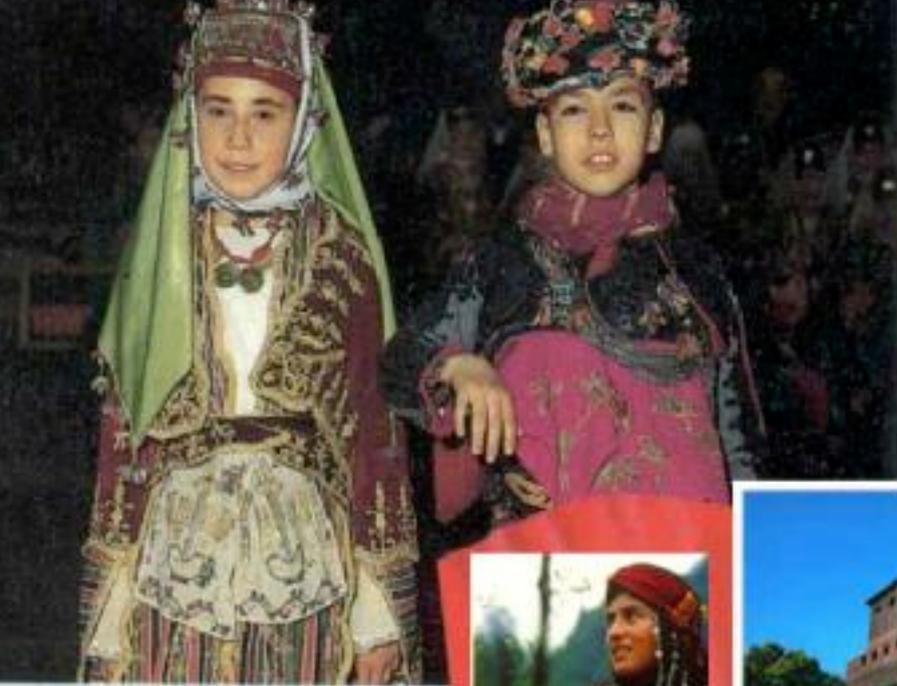


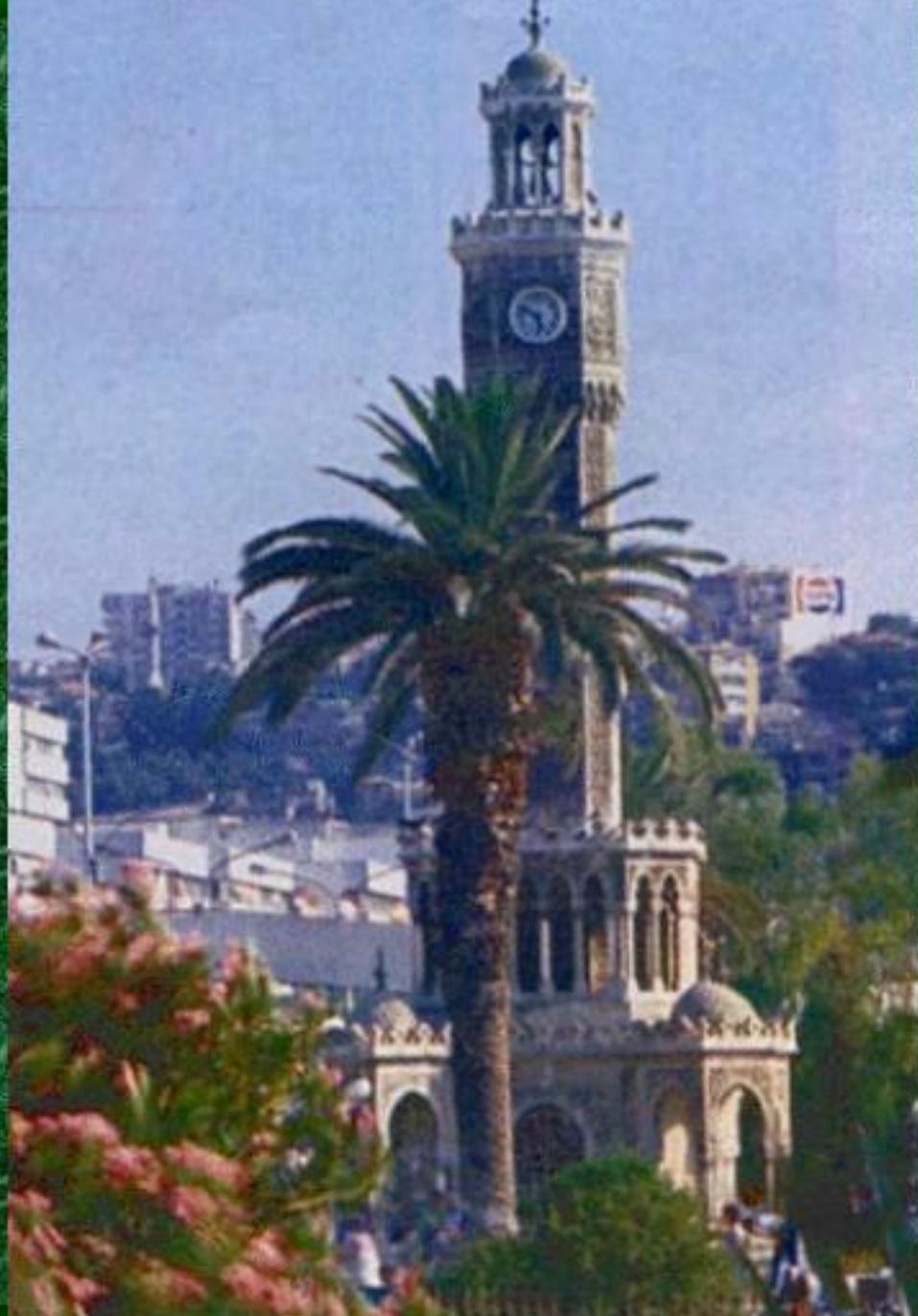




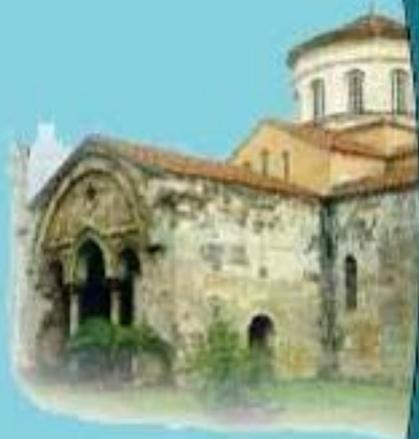




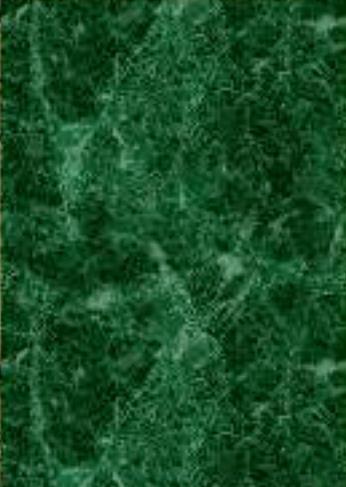
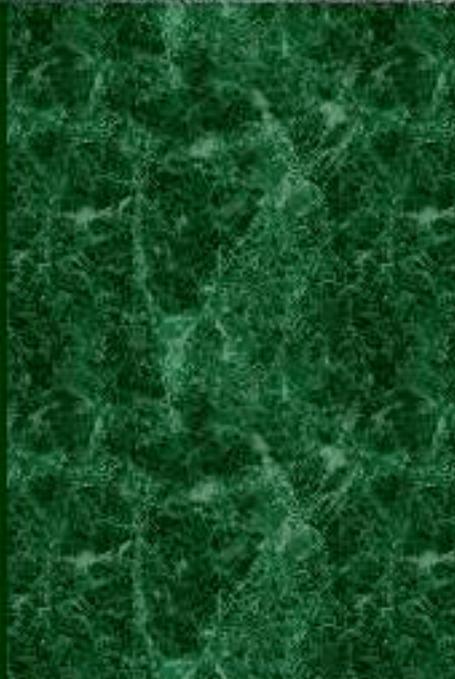
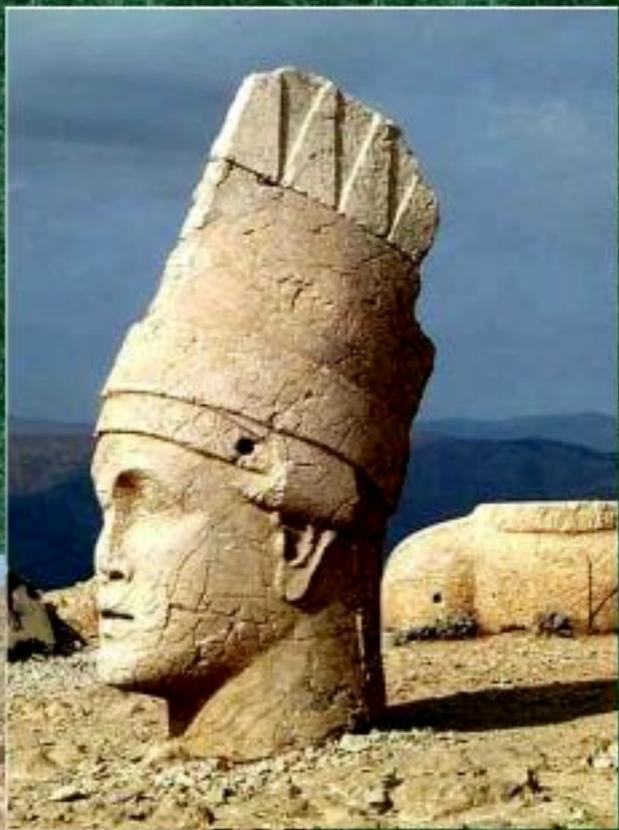




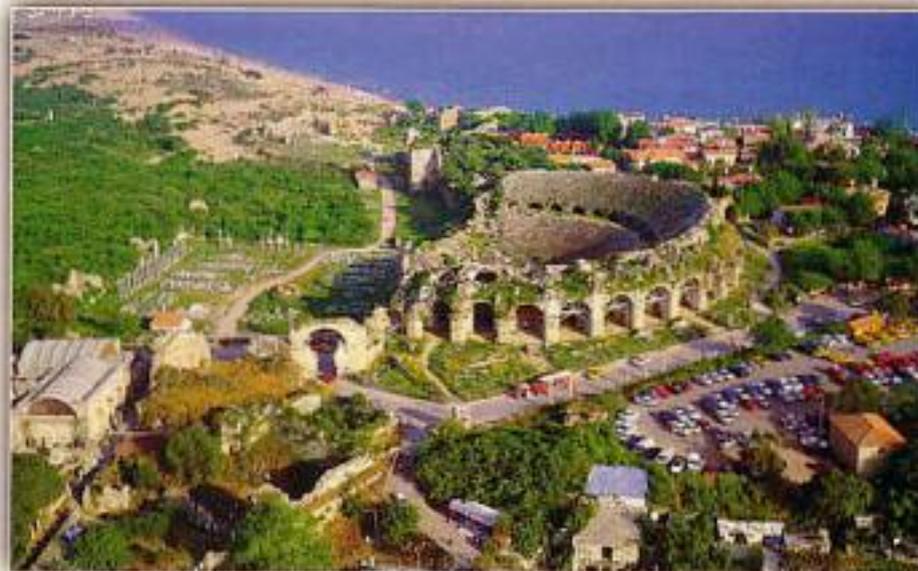
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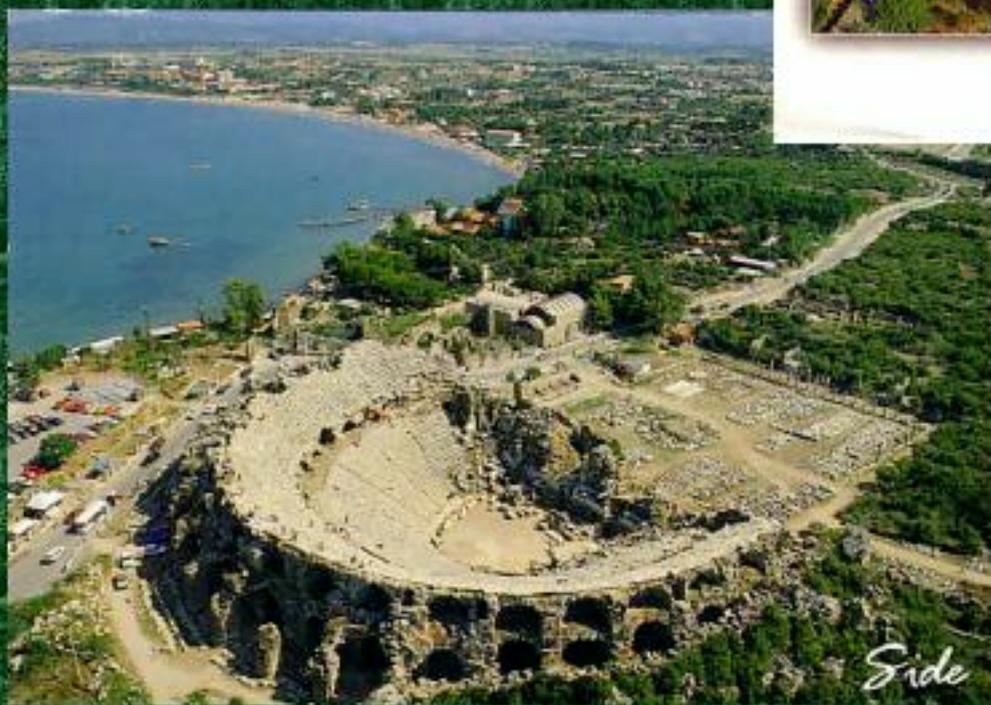






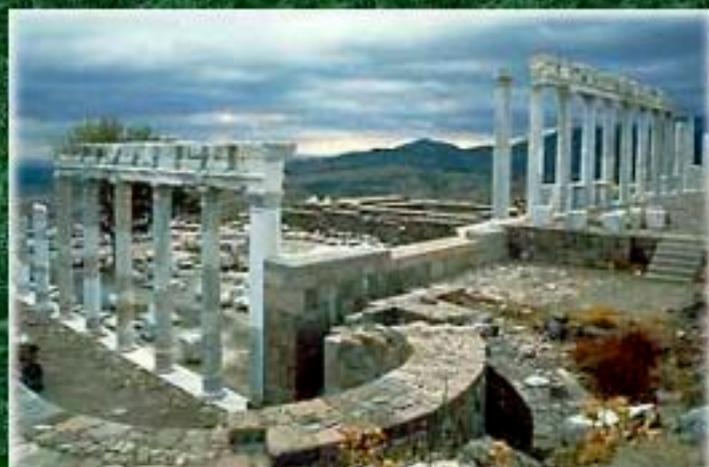


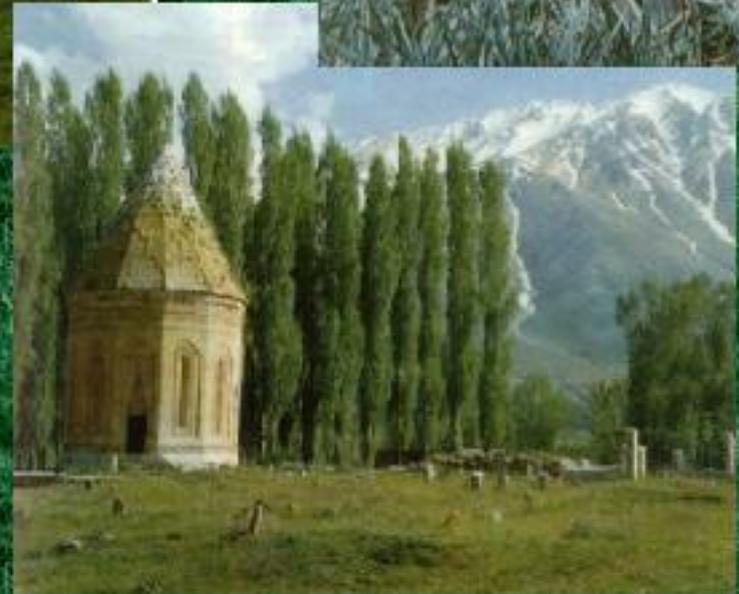
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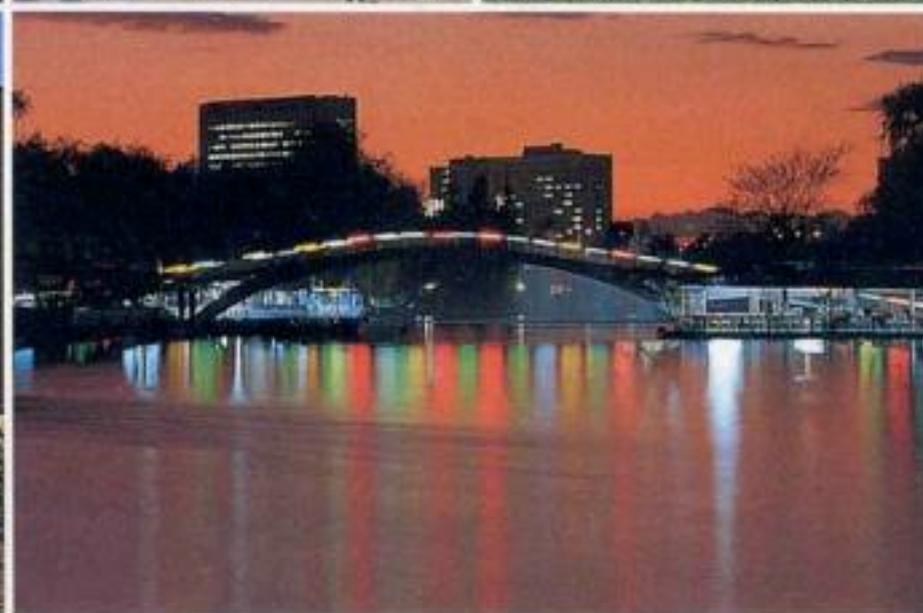
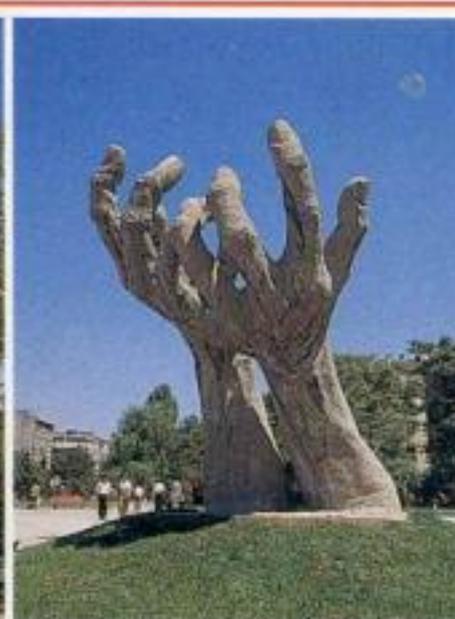
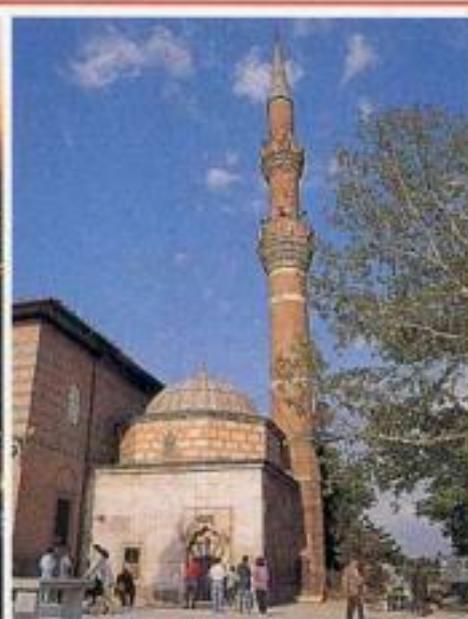
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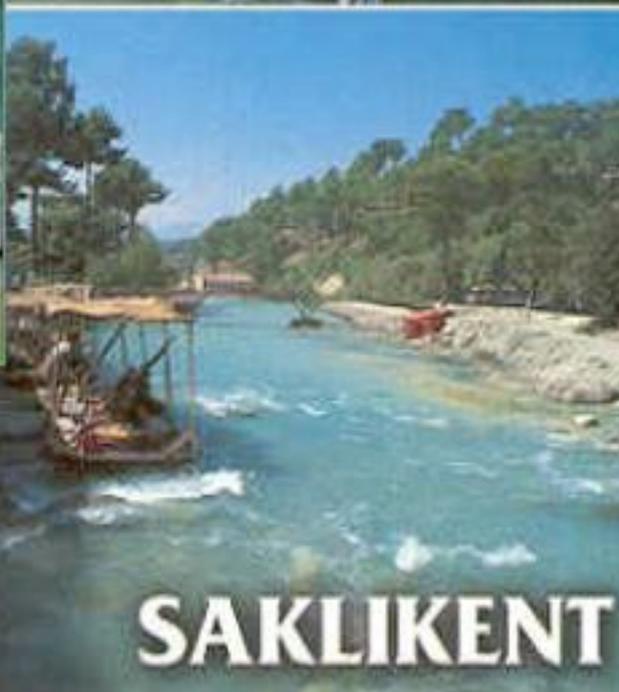




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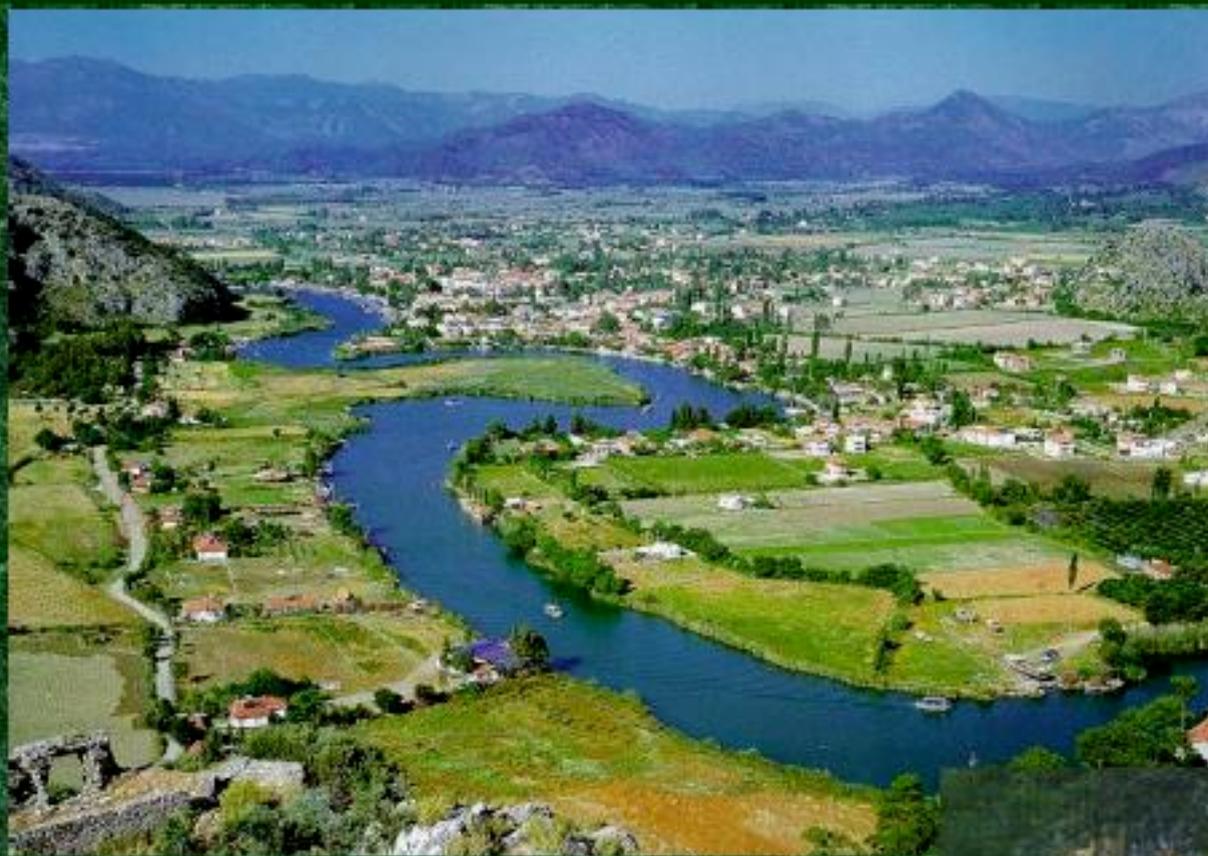
BODRUM





Ölüdeniz-Fethiye





DALYAN/MUĞLA

