comes from the Greek phyllon, which means "leaf.") There are numerous species of this form of algae found in ancient limestones. The leaf-like blades are commonly found to be 1 to 6 inches long, and the fossilized plants show indications of having been 6 to 8 inches in height. These plants are very abundant in the mound-like deposits of calcareous sediments in which they grew. The blades had a calcareous skeleton of their own, and thus could maintain their identity until they were covered over by more sediment and preserved. They are found in natural burial position, slumped down in the sediments. Because they were rather broad (resembling broad leaves) they frequently sheltered small empty spaces beneath them.[10] Most of these cavities were later partially filled with crystals of calcium carbonate, but a large proportion of them retained small spaces which, in the oil field strata, serve as recesses for the retention of oil in the rock.

The discovery of algal mounds with these blade-protected cavities shows us that they were buried in a rather calm environment, and that they were not covered over with heavy weights of additional sediment until long after their original burial. The building in of enough calcium carbonate cement crystals to support even a few feet of additional sediments requires centuries. So the lack of compaction in these limestones is an indicator of the long periods of time which passed before the additional sediments were deposited. For example, a thick bank of phylloid algal limestone, showing the characteristics we have been discussing, is found at a depth of about 6,000 feet, in one oil field in southwestern Colorado.[11] The broad-bladed algal plants found in the drilling cores show that they were only mildly compacted. So in this case also, long periods of time passed before most of the sediments above were added. Figure 23 shows the approximate shape and position of one of the algal banks found in this oil field. (The name Ivanovia seen in the figure is the generic name of the most common broad-bladed alga in that geographic area, and the names across the top of the figure are the names of oil wells.)

In addition to the phylloid algal deposits just described, there are many other similar ones in Utah, New Mexico, Oklahoma, Missouri, and Kansas. Some of these deposits are near the surface, and are seen in road cuts, while others are found deeply buried in oil fields.

A good example of the phylloid algal limestone in Kansas is that of Greenwood County in the southeastern part of the state. Core samples from this 90 foot thick deposit, collected by the Marathon Oil Company from a depth of approximately 1,400 feet, contain a very high proportion of broad, phylloid algal blades. Some of the blades in these samples show the effects of slight compaction. However, the weight of the sediments above was not great enough to obliterate nearly all of the cavities beneath the blades. A vivid testimony of this fact was recorded in the groups of calcium carbonate cement crystals which now lie in regular patterns in most of the cavities. These finally filled the spaces sufficiently to support the 1,400 feet of sediments which were to be added above.