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What were the problems facing architects when designing the layout of buildings on the Acropolis?

Architects faced many problems when building temples in sanctuaries. A sanctuary's boundaries can be identified by several things; natural boundaries including mountains (like Delphi and Olympia), rivers or an edge of a wooded area, man-made boundaries including walls (like Acropolis) or a row of stones placed around the perimeter. These boundaries could often pose difficulties in the layout of buildings. When designing the Acropolis architects had to consider the topography, previous buildings, and transportation of building materials.

The Acropolis is situated on the top of a large flat hill in the centre of Athens. As a result of its positioning there are sheer drops on all sides and an extremely rocky terrain. We can clearly see how this has affected the buildings and in particular the Propylaia (the gateway to the sanctuary). It can be found at the west side of the Acropolis. The gateway was 'refurbished' after the Persian wars under the watchful eye of Phidias and its architect Mnesicles. There had previously been another building before the Persian wars and this had to be considered when designing the Propylaia.

To overcome the problem of the steep gradient of the hill the Propylaia was designed over two levels. This ensured that roof was not going to run into the floor, therefore making it easier for people to pass through.

Another important design feature of the Propylaia is the ramp which runs through the middle. This provided safe and easy access for the many animals that passed through the gateway for sacrifice at the many events that occurred throughout the Athenian calendar. Flanking the ramp were sets of steps for human use. In addition to this the Propylaia uses both Doric and Ionic columns to save on space but still keeping certain requirements of the designs. Six Doric columns are placed on both the east and west entrances and exits. Inside two rows of six ionic columns help support the layered roof and as a result of ionic columns being slimmer it provided more space inside this building.

Phidias's plans originally contained four wings on each side of the Propylaia. However as a result of an older temple – the temple of Athene Nike, one wing on each side had to be scrapped. Also as a result of this small temple the southern porch is slightly smaller than the northern. Plans to have an art gallery in both porches also had to be demolished and instead the art gallery was placed only in the larger northern porch.

The building of the Erechtheion posed many problems for Phidias and his team of architects. Where the Erechtheion is placed is the tomb of an Athenian mythical king. Also there are other sacred places including the 'sea' of Poseidon and the image of Poseidon's trident. The various cults and holy places in this small area were incorporated in the design in order to showcase them so that the legends and myths could not be forgotten.

Because of these important sacred places are in the position, the Erechtheion was again built over several levels. The cella has been split into two and is on two levels; the one in the east higher and contains the cult statue whilst the west one on a lower level has been divided into an anteroom and two inner chambers. This temple (built in memory of the legendary Athenian king Erechtheios) has been cleverly manipulated to fit around important factors of Athenian history and mythology.

The Persian wars (499BC-449BC) stopped progress on the older Acropolis. As a result of this there were originally foundations in place of the Parthenon, however the Athenians wanted to show the amount of power and wealth they had and wanted a larger foundation for their new temple to honour Athena. Due to the rocky terrain of the Acropolis and the planned extension of the old foundations the land had to be built up and levelled. As a result of the new wider foundations the Parthenon has unusually eight columns along the east and west ends and has a consistent ratio of 9:4.

Many of the temples (the Parthenon entirely) were made out of locally sourced marbles from the quarries on Mount Pentelicon. To ensure that costs of the programme were not too costly every piece of marble was used. If the quarries were not near the Acropolis the Athenians could not have considered using the expensive marble. This is one problem that was faced by architects when building the temples at Olympia, in particular the temple of Zeus, because of its remote location they had to use the crumbly local limestone.

During the building of the Parthenon many refinements had to take place so that the building looked 'normal' against the blue skies. The middle of the stylobate was raised slightly in the middle. The columns swelled around a third of the way up so that they didn't get thinner in the middle it also helped to support the weight of the roof. The columns in particular bent inwards, if they carry on raising up they will eventually meet. Small sculptures were placed along the bottom of the roof so that the rain water would run down the then spout out so that large puddles would not form at the bottom and it also provided them with another opportunity to show off their sculpture. All of these small refinements were made in order for the Parthenon to look absolutely spectacular.

The layout of the Acropolis has been cleverly designed in order to incorporate both the old and new, and to make the most of the geography. It has been masterfully done.