A METEOROLOGICAL APPRAISAL OF ACTS 27,5-26

R W White

Introduction

Paul was an experienced traveler. He was taking his last, recorded journey after accumulating more frequent sailing points than anyone else in *The Way*. He had been transferred to an Egyptian grain ship in Lycia for the continuation of his trip to Rome, in order to stand trial before Caesar. Within these verses is a story ground in faith and hope, challenged by human desire and unpredictable weather and held together by prophecy and an indestructible belief in God.

My interest in this narrative arose from what was planned to be a fortnight in Crete. The more my wife and I looked at holiday brochures, the more we were determined to escape the disco scenes and get as close to Cretan village life as possible. This brought us to the southernmost point on the Island and the village of Matala.

When I realized that we would be staying near to where Paul's ship was to have anchored during his unsuccessful attempt to convince the sailors to Winter-over, I began reading various commentaries. It soon became apparent that there were considerable variations given the weather-related events in the narrative, e.g., the word "Northeaster" in verse 14 was listed in various commentaries as *"Euraquilo, Meltemi, Livas* and *Euros"* Each means something different meteorologically, as noted in the following section.

The author is a retired URC minister living in Gloucestershire. Prior to entering the ministry, he read meteorology at St. Louis University and was a professional meteorologist. He later read theology at Colgate Rochester Divinity School, Princeton Theological Seminary and The Hartford Seminary Foundation from which he was awarded a Doctor of Ministry.

What follows is not intended to alter the import of the journey or the spiritual power of the Apostle's words. Rather, it is intended to serve as a technical commentary which other than having the potential for a tedious read, might help the reader better understand how the weather-related events of this ancient narrative could have come about.

The Four winds of Southern Crete

MELTEMI(A) = a diurnal phenomena lasting about thirty minutes where warm air rushes off the land and over the water, occurring annually from late July through August. This daily variation occurs after cooling sea breezes have come upon the land during the day and become superheated by the sun before being propelled back to sea just prior to sunset. The effect is to rapidly cool the land as the air rushes down Mount Ida and coastal mountainsides onto the "*Kolpos Mesaras*" or the Gulf of Messaras. A similar diurnal effect occurs on warm spring and autumn days, but is accompanied by a tamer and more subdued evening breeze.

EURAQUILO= A severe northeasterly wind associated with passage of cold front or similar trough of low pressure usually associated with a storm centre to the north in the Aegean Sea.

LIVAS= A seasonal wind meaning "a wind from Libya" that occurs only in the spring. It is a steady breeze from the southeast that can last a few months, often accompanied by a rain containing dust from the Sahara Desert that leaves surfaces coated with a fine red powder as they dry.

EUROS= Also a southeasterly wind, sometimes referred to as, or confused with a *Livas*. NB: From conversations with local fishermen and others who have lived their lives by and upon the sea, I found that the southwesterly breeze that blows upon southern Crete in late spring, summer and the early days of autumn was also called a *Euros*.

In order to establish timing for this narrative, I have accepted the popular understanding of the word "Fast" in **verse 9** as meaning the Jewish Holy Day of Atonement (*yom ha-kippurim*). This suggests that Paul's journey most likely began sometime during the first half of October and that his departure from Crete was around the end of October or beginning of November, AD 61.

An Exegetical View

Bound for Italy after leaving Lycia, the ship fought headwinds on the way to Cnidus. The description of this wind and the ship's route in **verse 7** suggests that it was attempting to navigate the safer and more northerly route through the Aegean Sea to Corinth. Winds and weather around the tip of southern Greece were known to be treacherous in the autumn and winter requiring ships to portage the isthmus west of Corinth. Additionally, the winds and weather south of Crete at that time of the year in the open Mediterranean were also known to be capable of overwhelming any ship that dared to sail that route. It was a season when Atlantic storms spawned north of the Canary Islands moved eastward through Gibraltar, into the Mediterranean and through the Bosporus Straits bringing heavy winds and rains that could last for several days.

Taking into account that a series of such autumnal storms existed at the time of this story, the ship's departure from Lycia was most likely under fair skies that came between storms. It is during such a time that westerly winds are present and could have been responsible for their "slow headway for many days". The presence of this kind of weather pattern would also explain why the wind shifted from the west to the north or northeast and later pushed the ship southward toward the western tip of Crete, "opposite Salmone".

Considering the distance between Cnidus and Salome as well as the speed of the ship, it is likely that it would have taken two to three days to complete that leg of the trip. This would have been enough time for another storm to move eastward through the Aegean while the ship sailed to the south. As the new storm continued on an easterly track the wind would have begun to swing around to a southerly or southwesterly direction causing their "difficulty" while sailing along the southern coast of Crete, as described in **verse 8**.

The area referred to as "Fair Havens" is an elongated east-west bay with about eight kilometers of shoreline and four or five small harbours, each providing a fair haven to ships at sea. The ship's anchorage is described as being near the '*polis*' or city of Lasea. Not only is there no city in that part of Crete but there is no indication of ever having been one due to the inhospitable terrain. Lasea is now designated as the fifty square kilometer area that extends from Matala to Cape Lithinon (also known as Cape Leon) and the "Fair Havens". Today there are small villages dotting the bay, as it would seem there were when Paul dropped by two thousand years

ago. The village furthest west and having the most protected harbour is *Kali Lemènes*, sometimes spelled *Kaloi Limenes* or *Kalous Limionas*. The eastern end of "Fair Havens" bay is accessible by paved road and auto, however central and western portions of the area including *Kali Lemenes* are best reached by either burro or four-wheel drive vehicle. We chose the latter to cross the 3,000-foot coastal mountains. From our vantage at the western end of the bay some 2,000 feet above the sea, it was clear that the snug little harbour at *Kali Lemenes* would offer a ship protection from all four Cretan winds, except perhaps a gentle *Euros*.

Overlooking the bay on a western promontory that shields the harbour from the winds stands a church known to have been there since at least the 17th century, dedicated to the apostle Paul. Restored in November 1992 it contains various icons including 20th century reproductions of the Apostle, one of which depicts him in a preaching motif with a long, flowing and pointed beard hanging from his thin and bony face. His piercing eyes seem alight with an intense fierceness while he holds an open Bible in his left hand as the Sword of Truth dangles between the thumb and forefinger of his right hand. Another icon suggests a post-resurrection theme with a halo around his gaunt and frail looking head. From his downward hanging left hand is an open scroll apparently representing an accounting of his life, while his raised right hand is crossed over his heart with thumb and forefinger pointing heavenward. On the hilltop where he stands are temple ruins while in the harbour below is an anchored sailing ship. The detail even includes the small island in the harbour that serves today as a refueling station for cargo ships, leaving little doubt that local tradition places Paul's ship in the harbour at *Kali Lemenes*.

Below the summit upon which Paul is positioned in this icon and upon which is located the church, is a cave barely large enough for two or three people. Local tradition also holds that this is where the Apostle preached to the people of Lasea. A hand-written plaque over the entranceway dedicates it to his memory.[1]

Modern interpretations of *"aneuthetou"* in **verse 12** state that the harbour was "unsuitable" for wintering-over. Were Paul's ship anchored in the harbour at *Kali*

1. There is also a Cretan tradition that places Paul some seventy kilometers to the east where it is said he preached to the people of Hierapetra and where in the 17th century a cave was found about twelve kilometers to the east of the today's tourist city known as *lerapetra*. Others hold to the belief of a Fifth Journey when Paul returned to Crete and preached in the area of *Hierapeta*.

Lemenes then *aneuthetou* might better be understood as 'commodious' or 'roomy,' suggesting that the harbour was not commodious or roomy. Yet the harbour was and is very suitable for a ship to winter-over. What was not commodious or roomy was the quiet fishing village of *Kali Lemenes*. It was clearly not a suitable anchorage for sailors who would likely have preferred to spend their winter months in a more lively and populated *polis*. Rather than face the possibility of a mutinous crew jumping ship after months of inactivity and boredom, the ship's owner and pilot considered moving on to Phoenix, a larger community with an equally safe anchorage. Julius, the centurion was most likely just as concerned about his men, in addition to delivering his prisoners safely to Rome. Thus, he willingly went along with the ship's owner and pilot agreeing to move the boat about a day's journey to the northwest. Phoenix is thought to have been near the present-day, coastal town of Loutro in western Crete.

It must have felt like their decision to move on to the northwest had been blessed by the gods when a Euros began blowing from the south. Against Paul's pleas and warnings the ship hoisted anchor and sailed out of its fair haven on a "gentle south wind" as noted in **verse 13**. With a steady following wind pushing the ship at four or five knots they rounded Cape Lithinon and sailed into the Gulf of Messaras where the pilot set a northwesterly course. Spirits must have been high as the men anticipated shore leave in Phoenix that night. Their banter had to have quieted as they came in view of majestic Mount Ida with its 2,456-meter, snow-capped peak staring down at them. It was likely that some of the crew also noticed the dark, low, rolling clouds to the east. As they passed Matala Bay with Roman burial caves dotting the harbour sides and came into the open shoreline near Kalamaki, they were apparently slammed on starboard by a "*tuphonikos Euraquilo*", an extremely strong northeasterly wind as described in **verse 14**. The boat was pushed about onto a southwesterly heading to the lee of the Island of Cauda, known as Gavdos today, where the crew was able to catch their breath and secure the lifeboat. Why? What caused this sudden, ninety-degree shift in wind direction? How could the wind be so strong as to take control of the ship away from experienced sailors?

A Theological View

Of the two approaches I considered in seeking to answer these questions, the first was to consider Paul's beliefs in the fullness of the story as presented in the twenty-seventh chapter. Considering issues of faith and spirituality in-light of Paul's prophecies and warnings, some might say that the *Euraquilo* was God's retort to

the disobedient nature of the sailors, the ship's owner and the centurion, intending to humble them into the submission of conversion. The problem with that response is that such an experience would likely result in an amnesty for Paul, releasing him from his prisoner status in gratitude for their personal salvation. This would result in curtailing his trial and keeping him from faithfully fulfilling God's mission before Caesar, as he later details in **verse 24**. Paul's steadfastness and loyalty to God was not to be under-estimated and the events of this story do not give reason to call them into question. Neither can there be much doubt that he knew he was going to his death. To sacrifice himself before accomplishing God's task would have been out of the question for Paul. It would also be inconsistent with Pauline theology to assume that the ship was redirected from the safety of a winter harbour by a Divine wind, or that it was God's intent to expedite the journey in order to satisfy Paul's mission before Caesar. All of which leaves little to theologically explain the existence of what seems to have been an especially tempestuous *Euraquilo*.

A Meteorological View

A physical or scientific answer to the question would first have to ask 'why had these experienced sailors not seen warnings of changing weather before they left their fair haven?' One possibility is that their view to the north and east was blocked by mountains over one thousand meters high within a kilometer or two of their anchorage. Another possibility was that they simply chose to overlook the warning signs thinking they could outrun any foul weather in the Gulf of Messaras. A third possibility is that they recognized the warning signs, but underestimated the severity of the impending change. But again, the question must be asked, 'Why'?

It is this final question that I believe leads to the answer explaining their predicament. Given the fact that they were making the journey to Rome in late autumn, there is a distinct possibility that they found themselves sailing in what is known as a low-index weather pattern. It can simply be described as a stormy period that persists for weeks on end and where storm after storm moves west to east along a relatively fixed track. In this particular case, the track took the storms across the northern Mediterranean Sea. To the south of the storm track would most likely be a stationary ridge or bubble of fair weather. This allowed the heat from the Sahara Desert to slide northward and fuel the storms, while keeping them on track as they slid eastward down the ridge the way one would sleigh down a snowy hillside. As the storms moved eastward with brief periods of fair weather, in between, winds alternated every few days shifting from northerly to southerly and back again

along the sailing routes. This kind of weather pattern would not only explain why the ship was said to have found favorable and unfavorable winds at different times and places, but would also contribute to sudden changes in wind direction and speed. Being in the right place at the right time was an absolute necessity for any ship's pilot sailing through such a weather pattern.

As the ship left *Kali Lemenes*, there was most likely one of a series of these autumnal storms moving across the western Aegean Sea to the northeast of Crete. Trailing to the southwest out of the centre of the storm was an atmospheric valley or trough of blustery weather. To the south of it was warm air and to the north was cool air, the perfect ingredients for tempestuous weather. Over the water the warmer air would have been blowing from the south such as was the following wind that had coaxed the sailors out of their 'fair haven'. North of the trough, the cool air blew from the northeast. Once in the open water of the Gulf of Messaras the sailors were able to see the changing weather approaching from the Platanos Valley to the east and Mount Ida to the north. For some it appeared to be a condition they had been through dozens of times and saw no cause for alarm. Even the Pilot misread the severity of it as he failed to order the deck cargo secured and the sails reefed. What he actually failed to consider, or perhaps even know about, was the effect that the Platanos Valley could have on such a weather pattern.

This lush valley lies in an east-west direction and is about fifty kilometers long and ten kilometers wide. It is snuggled between two ranges of mountains extending over twelve hundred meters in height. The eastern end rises to become the western slope of 2,148meter high Mount Dikti while the flat, twenty-kilometer wide western end extends between Matala and Timbaki and opens onto the Gulf of Messaras. The valley's orientation and configuration make it a perfect channel to ensnare troughs of blustery weather, acting like a Venturi tube, a pipe named after an Italian scientist to measure flow rate. Venturi's theory of fluid mechanics is based on compressing a fixed amount of fluid through a constriction in a pipe. As the fluid is compressed, its pressure is decreased while the flow is increased, causing the fluid to exit the pipe at a higher velocity than when it entered. The same principle applies to the fluidity of air as the valley becomes one of Venturi's pipes. In the Platanos Valley, cool air flowing east to west behind the trough is constricted and compressed by the surrounding mountains. This results in a decrease in atmospheric pressure and an increase in wind speed. Trillions of molecules of air slide down the westem slopes of Mount Dikti into the valley and are thrust out the western end over the Gulf of Messaras as if being expelled from the exhaust of a jet fighter, blasting

whatever might be in their way. In late Autumn of AD 61, it happened to be an Egyptian grain ship carrying the Apostle Paul.

A Concluding View

The phenomenon central to Paul's story was an **unusually severe** wind, **greater than** a *Euraquilo* that rushed into the Gulf of Messaras striking his ship broadside. Any hopes of reaching a safe harbour for a pleasant winter in Crete were instantly abandoned, as the ship was forced to sail into a southwesterly direction.

Had the frontal passage produced a *Euraquilo* as is usually experienced in that part of Crete, the ship's crew would most likely have been able to battle their way through the storm, hugging the shoreline and making it to Phoenix albeit safe but a bit exhausted. Had the ship remained in its fair haven for another day or two, the trip to Phoenix would have been more of a routine sail. Had the ship remained in *Kali Lemenes* and Paul continued to preach the Gospel message, one would have to wonder if he would ever have reached Rome at all?

The remaining verses of this narrative describe the rest of the joumey as the ship was pushed toward the Libyan coast before turning back northwest and ending up on the rocks of Malta nearly 1,000 km to the west of *Kali Lemenes*. Ordinarily, Mediterranean skies are clear enough to navigate by the stars, but verse 20 indicates that"neither sun nor stars appeared for many days and the storm continued raging". This too is characteristic of autumnal storms that ravage the Mediterranean during the time of low-index weather patterns.

The narrative ends leaving the reader to wonder about the destiny of the passengers and crew; after all they had been through together, whether their survival might not have been a clearer testimony to the presence of Paul's God, than all his prophecies, warnings or words? Had this not been Paul's last journey, it would have certainly been his most memorable one.

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