Mathematics in astronomy

land issue

GUEST COLUMN

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THE first historical records on astronomy, geometry and numbers were found in Mesopotamia and Egypt. In the fourth millennium, Egyptian Priests were able to determine the location of Sirius with respect to the position of the Sun. They used this knowledge to create the first calendar in 4241 BC with a year consisting of 365 days. This oldest exact historical date from the fourth millennium BC was found in the writings of the Egyptian Priests. Before this date, Egyptian Priests had been using a less exact calendar associated with moon phases.

About 4700 BC, Babylonians used a calendar which started with the vernal equinox and the first month of a year was named after Taurus. Later, in the sixth century BC, Thales at Miletus (625 - 545 BC) organised the Ionian School of Astronomy, Mathematics and Philosophy. It was the first school in science, which had great influence on the entire civilised world.

Thales predicted eclipse on the 28th May, 585 BC in the period of wars among Medov tribes inhabiting the present territory of Iran and Turkey. This won him a great prize. He was nominated by the king to the status of Wise Man. Thales knew the periodicity of eclipse with the cycle every 18 years and 11 days. He also computed that a year has about 365 days, instead of exactly twelve months with thirty days each. Thales thought that the Universe was created from water and that the Earth had a shape of a disk swimming on water like an island on an ocean.

In the third century BC when Alexander the Great conquered the ancient world, he built in Egypt the most cosmopolitan town called Alexandria. It was then and there that the first university with lecture rooms and a great library were organised. Lecturers from different cultures and countries were employed at the University.

Amongst them, Euclid, (330-275 BC), Archimedes (287- 212 BC), Apollonius (250-190 BC) Apollonius from Pergy, (presently southern Turkey) described conic curves and created fundamental knowledge on movement of planets in the Solar System. Any discussion of the Alexandria University must account for the advances in astronomy, a branch of science completely dependent on mathematics.

For fourteen centuries, the accepted blueprint of the Solar System was that of the Alexandrian Claudius Ptolemy (100-170 AD) Ptolemy did for astronomy what Euclid did for geometry, by incorporating a brilliant power of synthesis and exposition with the original genius. He reduced the works of his predecessors to a matter of historical interest with little chance of survival. His great treatise "Syntaxis Mathematica" (The Mathematical System), or Almagest, as it became known to Arabs and medieval Europeans, was destined to remain the supreme authority on astronomy until the publication "De Revolutionibus Orbium Celestium" by Copernicus from Poland in 1543 AD. The Copernicus Solar System with the Sun as the centre has been proven to be the correct one.

Two outstanding astronomers who had notably contributed to the mathematical model of a Solar System in the early part of the seventeenth century are Galileo Galilee from Italy (1564-1643) and Johannes Kepler from Germany (1571-1630). Galileo was appointed the Professor of Mathematics at the University of Pisa.

He contradicted the commonly accepted Aristotle's Model of the Solar System, which was later proven to be false and replaced by the Copernicus Model of the Solar System.

Johannes Kepler published the rigorous mathematical model of planetary motion in his book "Harmony of the World" in 1619, where he presented three laws of planetary motion. Today astronomers are able to predict the eclipse of the moon and the sun with great accuracy of time and place.

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especially those of North East, Tlokweng, Balete, CKGR, and those in similar situations, that under the current government, they shall never have access to their land unless and until they themselves do something extraordinary.

For many years' people such as the late BPP leader Phillip Matante, the former MP for North East and many others have been advocating for the return of land to the people, but the current government ignored them all. Recently, a BPP counsellor in Francistown Motlatsi Molapise who was merely seeking clarification on land allocation in that city, was subjected to serious harassment and his motion rejected by BDP counsellors in that city.

Now the question, is what should the landless people of North East do to get their land back? Parliament has failed them.

**Balashiki Fanikiso
TSAMAYA**