



A little science...A touch of fiction...A lot of adventure...

News from the Den

It's July already! In the northern hemisphere, we are having another sweltering summer heat wave. In Colorado, we experienced the hottest June on record. A large blocking high pressure cell developed in the southwest US and moved across the southern states. This cell prevented monsoon moisture from rising out of the Gulf of Mexico and 'cooling' Colorado. The high pressure ridge is forecast to be large enough to block and/or influence the track of hurricanes within the Caribbean. Our first hurricane of the season is a whopper. Hurricane Beryl is the first tropical storm to reach a category 5 this early in any hurricane season. The storm is moving west towards the Yucatan Peninsula and will then swing northward towards the Texas coast. Fingers crossed it weakens. And some think climate change isn't real?

Here in the Den, we are huge sports fans. And July is going to be the bomb for sports. We have the Tour de France working its way out of Italy and across France to finish with a time trial in Nice. This is a first for the Tour, as Paris is focused on the Olympics, there will not be a sprint on the Champs-Élysées in the final stage of the race.

Then in mid-month it's The Open, the 152nd golf championship is being held at Royal Troon, Scotland. Look forward to windswept dunes on this links course, wild weather off the Firth of Clyde and the longest hole in Open history. At 623 yards-par 5, Hole 6 will create drama.

And we conclude the month with the opening ceremony of the Paris 2024 Olympics. This is the 3rd time Paris has hosted the games which will be the largest on record with nearly 10,500 athletes from 132 countries competing in 32 sports.

Even for us in the Den July and August may create sports overload. But when we watch sports we can't help but think about the science behind the events: the aerodynamics of swimming and the use of space-age materials to reduce friction through the water; the physics of the peloton (the group of riders in cycling - in this year's tour there are 176 riders) the peloton behaves with the dynamics of a flock of birds or a school of fish-for those in the middle of the peloton-their effort-output is reduced by more than 35% due to the vacuum created by the slipstream of the riders; in prior newsletters we spoke about angular momentum generated by throwing an American football - this same momentum is generated by shot putters, hammer and discus throwers as they spin within the circle before releasing the weight; and the torque generated by the double pendulum motion in a golf swing.

Science is the defining factor in each of the competitions: be it in the rubber makeup of the track, the spring beneath the floor exercise mats, the carbon fiber in the driver's shaft, the aerodynamic design of a road bike, and even in the athletes nutritional programs. So hats off to science as wins are measured in milliseconds, millimeters, and milligrams. But, no science can match the sheer amazing efforts these athletes exhibit as they compete in their sport. We wish the world a respite from current unrest to celebrate the Olympics, the Tour and the Open.

Photo of the Month

Spectators on the 7th green at Arrowhead Golf Club, Roxborough Park, Colorado. This is where we in the Den play.



Historical Foundations

July 4th is a celebration of Independence. Fireworks have been a part of the many activities across the United States since 1777. But, fireworks are much older than that and have been around since 800BCE. They were developed in China from a recipe of potassium nitrate, charcoal and sulphur. Ever wonder how the Chinese alchemists figures out the recipe? Check our this amazing NOVA article:

[Fireworks Chemistry](#)

Minutiae

Enjoy the month and the season. We'll be back next month with another installment. Be well, be kind.
CA



Keep being curious,

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