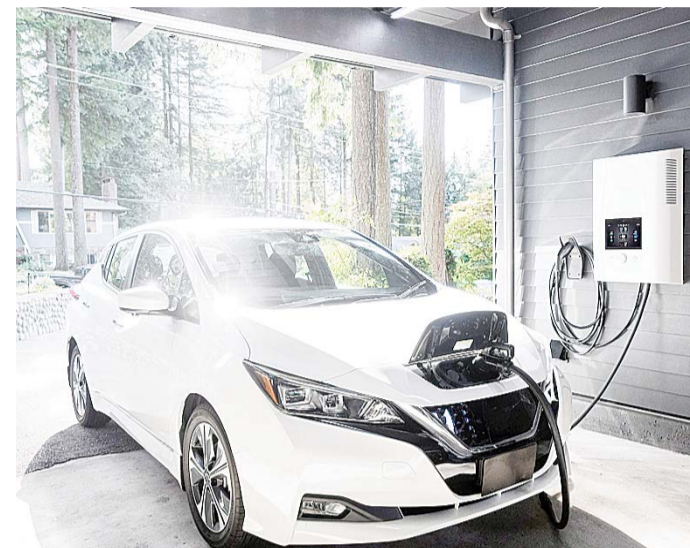


#RESEARCH

Daytime EV Charging

To limit the high costs of all that new capacity for generating and storing electricity, drivers should move to daytime charging at work or public charging stations



Charging your electric vehicle at work instead of at home, and during the day instead of at night, could cut costs and help the grid, a new study shows.

In March, the researchers published a paper on a model they created for charging demand that can be applied to an array of populations and other factors. For their new study in Nature Energy, the team applied their model to the whole of the western United States and examined the stress the region's electric grid will come under by 2035 from growing EV ownership. In a little over a decade, rapid EV growth alone could increase peak electricity demand by up to 25%, assuming a continued dominance of residential, night-time charging.

To limit the high costs of all that new capacity for generating and storing electricity, drivers should move to daytime charging at work or public charging stations, which would also reduce greenhouse gas emissions, the researchers say.

We encourage policymakers to consider utility rates that encourage day charging and incentivize investment in charging infrastructure to shift drivers from home to work for charging," says the study's co-senior author, Ram Rajagopal, an associate professor of civil and environmental engineering at Stanford University.

Helping the Grid In February, cumulative sales of EVs in California reached one million, accounting for about 6% of cars and light trucks. The state has targeted five million EVs on the road by 2030. When the penetration hits 30% to 40% of cars on the road, the grid will experience significant stress without major investments and changes in charging habits, says Rajagopal. Building that infrastructure requires significant lead time and cannot be done overnight.

"We considered the entire Western US region, because California depends heavily on electricity imports from the other Western states. EV charging plus all other electricity uses have consequences for the whole Western region given the interconnected nature of our electric grid," says Siobhan Powell, a PhD in mechanical engineering and lead author of both the March study and the new one.

"We were able to show that with less home charging and



more daytime charging, the Western US would need less generating capacity and storage, and it would not waste as much solar and wind power," she says.

Once 50% of cars on the road are powered by electricity in the Western US of which about half the population lives in California—more than 5.4 gigawatts of energy storage would be needed if charging habits follow their current course. That's the capacity equivalent of five large nuclear power reactors. A big shift to charging at work instead of home would reduce the storage needed for EVs to 4.2 gigawatts.

Current time-of-use rates encourage consumers to switch electricity use to nighttime whenever possible, like running the dishwasher and charging EVs. This rate structure reflects the time before significant solar and wind power supplies when demand threatened to exceed supply during the day, especially late afternoon in the summer. Today, California has excess electricity during late mornings and early afternoons, thanks mainly to its solar capacity. If most EVs were to charge during these times, then the cheap power would be used instead of wasted.

Decarbonizing

At the local level, if a third of homes in a neighbourhood have EVs and most of the owners continue to set charging to start at 11PM or whenever electricity rates drop, the local grid could become unstable. "The findings from this paper have two profound implications: the first is that the price signals are not aligned with what would be best for the grid and for ratepayers. The second is that it calls for reconsidering investments in a charging infrastructure for where people work," says Ines Azevedo, associate professor of energy science and engineering in the Stanford Doerr School of Sustainability and a co-senior author of the new paper.

"We need to move quickly toward decarbonizing the transportation sector, which accounts for the bulk of emissions in California," Azevedo says. "This work provides insight on how to get there. Let's ensure that we pursue policies and investment strategies that allow us to do so in a way that is sustainable."

A scenario of having charging infrastructure that encourages more daytime charging and less home charging provided the biggest benefits, the researchers found.

The term "Rum Punch", as per Balbir, was derived from the Sanskrit "paanch". The five, or "paanch" ingredients were alcohol, sugar, lemon juice, water and either tea or spices. Ascribed to the traders of the East India Company, this Sanskrit "paanch" was translated to "One of Sour, Two of Sweet, Three of Strong, Four of Weak". The sour was lime, the sweet was sugar, the strong was rum and the weak was water. The fifth ingredient of the "paanch" was not identified by the Britishers.

The Rum Punch: Not Just Another Rum'un



Wg. Cdr. CSV Ramany, VM (G)
The author is a retired IAF fighter pilot

"Atmanirbhar Bharat Abhiyan"
"Swachh Bharat Abhiyan"
"Make in India"

These words evoke the correct (and expected) political and nationalist sentiments from each Indian citizen. And keeping in mind these sentiments, the Indian Air Force, not to be left behind times, has in all its wisdom decided to rebrand the iconic "Rum Punch" as the "Vayusainik Milan".

The Rum Punch is a traditional custom, where the Officers and the men they command get together in a semi-formal setting. Semi-formal indicates that the Officers wear in uniform and the Airmen in civvies. This Rum Punch would be held on Republic Day, Independence Day, Air Force Day and possibly the Unit Raising Day. Traditionally the drink served would be Rum-pani with plenty of snacks - boiled eggs and masala peanuts being the favourites. On this day, hair is let down, casual informal banter takes place, and in general is quite an

essential part of the bonding process. For many years, rum was the favoured drink in the services as it cleared two of the most important criteria - it was cheap and it was strong. These days various other liquors and wines have ebbed out rum from its prime position. Plus, these days there are quite a few teetotalers in the services. So, possibly the renaming of Rum Punch as "Vayusainik Milan" was not such a bad idea after all.

#CHEERS!!!

Rum, per se, has a long and very colourful history. Starting from 1731, the Royal Navy had authorized a daily pint of Jamaican Rum for "each man and a half".

Rum, per se, has a long and very colourful history. Starting from 1731, the Royal Navy had authorized a daily pint of Jamaican Rum for "each man and a half". Over the years the sailor's rum ration has decreased, but the tradition lasted till the 1970s. The Indian Army launched "Operation Rum Punch" at 0400 hrs on 28 August 1961, when, as part of the United Nations Peace Keeping Force, two companies of the Indian Army Dogra Regiment seized the Radio Station and Police Station at Elizabethville at Katanga, a secessionist state of the Republic of Congo.

There are many versions of the history, origin and genesis of Rum. Our tea club Major Domo Balbir

had one such theory which sounded the most convincing. Balbir has now reached his Valhalla and is sipping fine rum, but his theory deserves recapitulating. The term "Rum Punch", as per Balbir, was derived from the Sanskrit "paanch". The five, or "paanch" ingredients were alcohol, sugar, lemon juice, water and either tea or spices. Ascribed to the traders of the East India Company, this Sanskrit "paanch" was translated to "One of Sour, Two of Sweet, Three of Strong, Four of Weak". The sour was lime, the sweet was sugar, the strong was rum and the weak was water. The fifth ingredi-

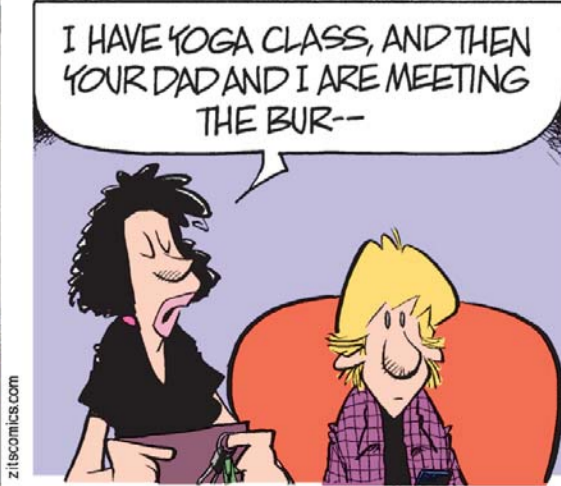


BABY BLUES



By Rick Kirkman & Jerry Scott

ZITS



By Jerry Scott & Jim Borgman



World Architecture Day

Architecture is something we do not tend to appreciate as much as we should. Look around you next time you walk down the street. Everything is a product of architecture. Think about all of those amazing buildings around the world. It's only right that we appreciate the work that went into these, right? Take a tour of some of your local works of interesting architecture, from skyscrapers to modern homes, and learn about famous architects.



Old monk rum.



Hercules XXX rum.

There was a shortage of beer in England. So, these settlers tried to make alcohol from anything that grew there - pumpkin, apples and even twigs. Failure in all these ventures meant that if you wanted to drink, you had to import it. They found that rum was cheaper than the brandy they were importing, due to shorter trade routes and cheaper base ingredient of molasses. Plus, it was stronger. Cheaper and Stronger: Instead of importing rum, they started making rum themselves. Towns like Salem, Boston, Newport and Medford became rum distillation epicentres. Rum was over 80% of New England's exports. But this was a totally slave dependent economic system. The more slave traders and slaves wanted rum; the more sugar production was needed to produce molasses. More sugar means more slaves to produce the sugar. More slaves meant more demand for rum.

Fermented Drinks

The first printed record of rum dates back to 1632 to an English document that states rum as a concept borrowed from India. Subsequently it was introduced to the Western world by seafaring employees of the East India Company in the 17th century. This is backed by archaeological findings which show that sugar was fermented as early as 350 BC in India and New Guinea. At that time these fermented drinks were used primarily for medicinal purposes.

In the 1400s, when seafarers and explorers started opening up the world's trade routes through explorations, remote islands were discovered, and so was a perfect climate for growing sugar cane. Like the spices of yore, sugar was highly valued in the trade route. However, sugar needed a large amount of water and manpower. Islands have plenty of water, and as for manpower, slaves were an obvious and easy choice.

Explorers began to increase sugar production in the Caribbean, Azores and Canary Islands. For this they needed more slaves. African slaves accepted many forms of payment for slaves, the most highly sought-after payment being rum. Rum was earlier known as "Hill devil" for its strong effect. The poor drank it straight, others began mixing it with sugar, lime and other ingredients, leading to the creation of the first Rum Punches.

In the early 1600s, the British colonialists living in New England had fond hopes of "Mediterranean bounty" coming from the "new world". Instead, they found the harsh climate of New England unsuitable for wines/grains/fruits. To make matters worse, at that time



Different blends of rum.

The Britishers, who never missed an opportunity to make money, tried to impose an import tax on molasses. This led to the Sugar Act 1764, where a tax was levied on molasses. Bridled along with other tax schemes, this led to the "No taxes without Representation" movement, which possibly was the forerunner to the Boston Tea Party. Once freedom fighting started in America, rum was once again one of the most sought-after commodities. One General, writing to George Washington is quoted as, "Besides beef and pork, bread and flour, rum is too material an article to be omitted. No exertions are to be spared to provide ample quantities of it".

Fashionable Drink

After the American War of Independence, rum became the fashionable drink for artists, aristocrats and intellectuals across Europe. The Jamaican rum became the alcohol of choice in much of the Western World. However, the birthplace of rum could also be traced to Barbados, Haiti, Cuba and India. Rums come in many blends - white rum, black rum, dark rum and navy rum. The first three are single blends, but navy rum is traditionally a blend of rums from Guyana, Jamaica, Barbados and Trinidad. This was named because this combo was given to the sailors of the Royal British Navy as daily rations or "tots". This system ended on 31 July 1970, now mourned in the Royal Navy as "Black Tot Day".

The darker rums are classified as premium and most Indian rums fall in to this category. As per Balbir, two pegs of Indian rum can give you a healthy and strong heart. Indian rum decreases cholesterol levels. It acts as a blood thinner, combats artery blockages, prevents heart attacks and heart diseases. However, Balbir felt that this theory did not apply fully to the good citizens of Rajasthan, who needed at least four pegs per day, due to their genetic pool mismatch.

Ideal for the heart as per Balbir, was a brand - Hercules XXX, which was manufactured since 1956 by a firm of Radio Khaitan. This brand was, and still is, a favourite in most service messes, even though the consumption levels have come down as the number of teetotalers has increased. Another great favourite was Old Monk, with its signature bottle. This is an iconic vatted dark Indian rum launched in 1954. With a distinct vanilla flavour, it has an alcohol content of 42%. For some reason, despite being so popular, or maybe in spite of it, this brand is not so freely available.

Enough has been said about the Vayusainik Milan, but to the Sainik Milans and the Nausainik Milans. It can end with just one word - CHEERS. writetoarbit@rashtradoot.com

#J'ADORE

Dazzling Dussehra Outfits

Match your celebration and sparkle in ethnic attire ranging from sparkling lehengas to swishing sharara designs as you say goodbye to Navratri season & gear up for Diwali.



Lehenga & Choli

The most perfect dress to go with Navratri and Dandiya nights is Lehenga Choli. Mirror worked colourful Lehengas and pattern choli will give you a flaunting look. It's comfortable to wear while you play Garba or Dandiya.

Elegant LehengaKurti

Fusion of traditional lehenga and formal kurti will give you a perfect traditional as well as elegant look for Dussehra. Dark embroidery or mirror work lehenga with light or chaste kurti is a good outfit for the festival.



Shibori Saree

Just like the pastel trend for sharara designs - Tie-dye and shibori printed sarees are one of the most enduring Indian wear trends. Super trendy, on-spot with the current zeitgeist and a wonderful way to channel a traditional, coveted craft through ethnic wear, a shibori saree is an easy choice this season!

Pastel Sharara Set



It's no secret that pastels are in this season. From fresh mint shades to soft blues and lilac tones, donning anything pastel this season is a sign that you're in with the times. The good news? Pastels are the epitome of sophistication when it comes to Indian festive wear. Exude a soft and gentle sparkle with a touch of ethnic flair by opting for pretty pastel sharara designs this Dussehra.

Dhoti Pant with Jacket

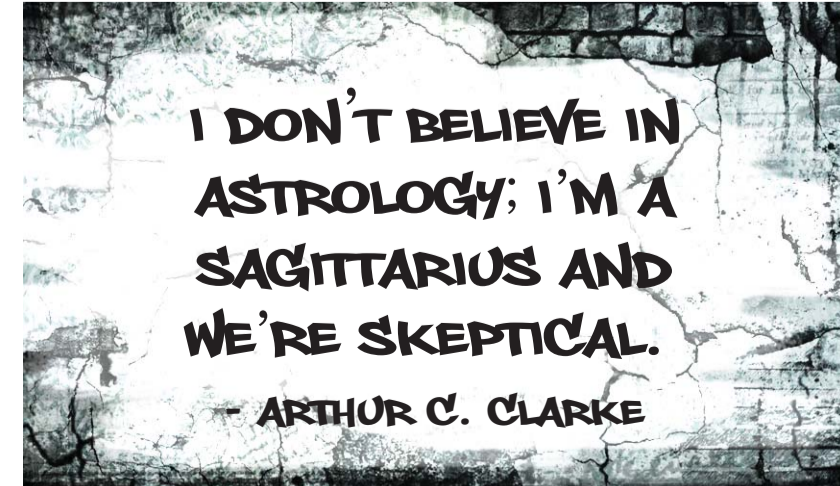
Now a days, Dhoti pants are really in trend. Printed jacket with kurti and dhoti pant will give a perfectly bold statement. It's new and different yet very much appropriate for Dussehra look.



Anarkali Suit

Anarkali is a dream outfit for many women. It gives an elegant and ready to gyrate look. It's easy to carry and comfortable to wear. This outfit will give you a relaxing but at the same time a comfortable look.

THE WALL



I DON'T BELIEVE IN ASTROLOGY; I'M A SAGITTARIUS AND WE'RE SKEPTICAL.
ARTHUR C. CLARKE