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Sinking Land

Land sinking or subsidence results in increased risk to roadways, runways, building foundations, rail lines, and pipelines







looked as a hazard in urban areas, globreport. For a new article published in the journal *Science*, Virginia Tech's Manoochehr Shirzaei collaborated with Robert Nicholls of the University of East Anglia to highlight the importance of recent research analyzing how and why land is sinking. including a study published in the same issue that focused on sinking Chinese cities.

Results from the accompa nving research study show that of the 82 Chinese cities analyzed, 45% per cent are sinking. Nearly 270 million urban residents may be affected with hard-hit urban areas such as Beijing and Tianjin, sinking at a rate of 10 millimeters a year or more.

"Land sinking or subsidence results in increased risk to roadways, runways, building foundations, rail lines, and pipelines. The phenomenor isn't limited to China, Shirzaei says.

structure in the next few

"Land is sinking almost everywhere," says Shirzaei, who was not involved in the China-focused study but whose recent research using satellite-monitoring techniques shed light on the growing dangers of sinking land along the U.S. East Coast. "If we don't account for it in adaption and resilience plans now. we may be looking at widespread destruction of infra-

technique," says Shirzaei, "We didn't have the data before. Now, we have it, so, we can use it not only to see the problem. but to fix the problem.' While consistently measuring the sinking of urban land will provide a baseline to

Shirzaei and

Nicholls expounded on this

concept in the perspective

article, focusing on three

map consistent large-scale

measurements of sinking

land in China, relied on space-

based radar. Over the pas

decade, advances in satellite

imaging technology gave

researchers like Shirzaei the

ability to measure millimeter

scale changes in land level

"This is a relatively new

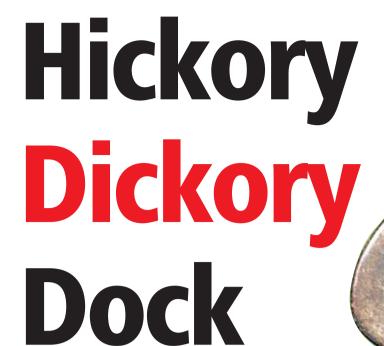
over days to years.

The technique, used to

work from, predicting future subsidence requires models that consider all drivers. including human activities and climate change and how they might change with time. Land sinking is mainly caused by human action in the

cities. Groundwater withdrawal, which lowers the water table, is considered the most important driver of subsidence, combined with geology and weight of buildings Recharging the aquifer and reducing pumping can immediately mitigate land sinking Shirzaei and Nicholls

called for the research community to move from measurement to understanding implications and supporting



Vikram Joshi

the last golf player in

Rambagh Golf Club

who used to play

renowned American

brand in golf) wood

headed clubs until a

few months ago until

I bought 'Honma'

Hand-crafted

Japanese golf club manufacturer)

woods and clubs. Playing with

Ping Woods, made from Crimson

wood, was so overwhelming. The

rich, deep hues of Crimson wood

add a touch of elegance to the golf-

ing experience, while its unique

properties enhance the perform-

ance of the club. The smooth, pol-

ished surface of the wood feels

exquisite in the hands, offering a

comfortable grip and precise con-

trol over each swing. As the club

strikes the ball, the resonance of

Crimson wood produces a satisfy-

ing sound, echoing through the

course. With Ping Woods, crafted

from this exceptional material

every stroke becomes a moment of

pure joy, blending artistry with

My love for *old Golf Clubs* was

the thrill of the game.

Textile Technologist



dies and a couple of weeks back,

someone handed me old, worn out

badly kept old clubs. Among them,

I noticed some with wooden shafts

and barely noticeable maker's

name, which technically is called

'Golf Cleek and Iron maker'. As a

ritual, any antique item I pick up,

I first clean it to restore the honor

of it. As I wiped the clubs with drv

cloth, I noticed, R-Forgan and

Sons St Andrews, Made in

Scotland. Wow!!! I immediately

googled the name and found out

that these were rare 'Hickory Golf

The Legacy of Forgan of

St Andrews: Pioneers of

Golf Club Craftsmanship

Forgan of St Andrews stands as

the oldest golf club factory global-

ly, tracing its origins to the early

days of what would evolve into the

Royal and Ancient golf club, custo-

dians of the sport's traditions. In

1819, the precursor to Forgan, the

Society of St Andrews Golfers,

appointed Allan Robertson as a

ball-maker and Hugh Philip, a

skilled local carpenter, as its club-

and pear woods for heads, and ash

and Hickory for the shafts, honed

his craft to perfection, innovating

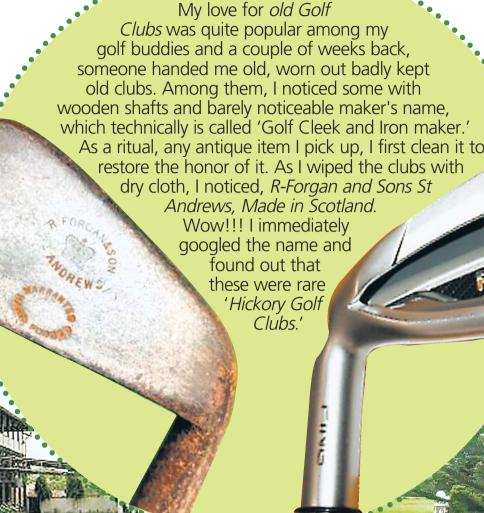
play with shapes that defied con-

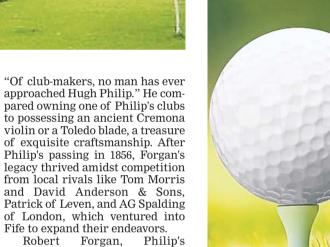
vention. James Balfour-Melville

lauded Philip in his

'Reminiscences of Golf,' saying,

Philip, utilizing thorn, apple,





#GOLF

eventual acquisition of Forgan by

American-owned Spalding, mark

ing the end of an era. The factory

ceased operations in 1963, with

Spalding consolidating in Belfast.

new life as the St Andrew's

Woollen Mill, offering tweed, cof-

fee, and shortbread. In 1988, the

Royal and Ancient Golf Club

it for the 131st Open.

bought the building, refurbishing

The disused factory found

Forgan, Philip's nephew and apprentice, assumed control of the company. During his tenure, imported hickory was seasoned by the 17th fairway at St Andrews. In the Black Sheds stacks of square-cut shafts awaited, each stack containing up to 8.000 rods. After a vear of season ing they were meticulously shaped by hand, meeting the high demand for Forgan's clubs.

The renowned Prince of Wales paid a visit, marking a shift from Philip's original workshop to an old fisherman's house that would become the heart of the company. The introduction of saws and lathes revolutionized production, leading to mass manufacturing. The Prince was enamored with a unique set of clubs in 1864, leading to the proud display of the insignia of golf club makers to His Majesty King Edward over Forgan's door by 1902.

Robert Forgan's premature death in 1900 passed the company to his son, Thomas, who expanded the workforce before his untimely death in 1906. The business then transitioned to his sons, Lawrence and Robert. The era saw the evolu tion of club names, from the Driving Putter to the Iron Niblick and Brassy, mirroring advance ments in club technology. While Forgan's thrived, the

economic downturn from falling herring stocks impacted the region, prompting many displaced from the fishing industry to find solace in golf. Forgan's expanded globally, taking orders from golfplaying nations. Locally, the famiy remained involved in communiaffairs, making significant donations to St Andrews Martyrs' Church. The Second World War brought challenges, leading to the **Assam: Where Tea and Golf Blend Seamlessly** and the Indian Golfing

Assam boasts a rich history of tea and golf, with tea introduced by Robert Bruce in 1823. The region harbors the world's largest concentration of tea plantations, employing a significant portion of the state's workforce. Assam tea production accounts for a substantial portion of India's total, making it a 'global tea hub.' India's first golf course outGymkhana

golf's roots. Organized by vari-

Proponents argue that hickory

golf offers a unique experience,

allowing golfers to play classic

courses as they were intended

Hickory Golf Clubs offer a nos-

talgic charm to the game, hark-

ing back to golf's early days

With their vintage look and feel,

these clubs transport players to

a bygone era of the sport.

Playing with hickory clubs

requires a delicate touch and

finesse, as they reintroduce 'feel'

to the golf shot. Golfers cherish

the challenge of finding and

restoring these clubs for play,

appreciating their historical sig-

nificance. Hickory golf allows

players to experience classic

courses as they were meant to be

played, adding a layer of authen-

ticity and nostalgia to each

side Great Britain emerged in Assam in 1829. The region's 'tea-tees' or golf courses within tea estates offer a unique experience, a blend of colonial heritage and natural beauty. These courses, often with nine holes. have become exotic holiday destinations, enticing tourists with the allure of tea and golf. Visitors to Assam's tea gardens immerse themselves in the region's tea culture, witnessing vast emerald-green estates. Many estates boast world-class bungalows with attached golf courses, creating a haven for tea and golf enthusiasts alike.

Forgan also made significant contributions to the global golfing community, exporting clubs to renowned sports shops like Wagle & Co in Bombay (Mumbai). Established in 1865. Wagle & Co sold golf clubs to Indian Royalties, featuring Forgan's stampings on their clubs. The Hickory clubs, which I found recently, has a stamping (Cleek) 'Wagle & Co Bombay.' This company is now transformed from an importer to an exporter of sports goods,

Jorhat Gymkhana Club: A **Storied Legacy**

The Jorhat Gymkhana Club stands as Asia's oldest golf course and the world's third oldest, a testament to Assam's golfing heritage. Built in 1876 by the British, the club initially served as a 'planters' club' for Assam's tea planters. The present club, established in 1885, boasts a

lush 9-hole golf course amidst round. It's a unique and rewardmature trees and serene water ing way to enjoy the timeless game of golf. Although, the modbodies. Tourists flock to Jorhat. not just for its golf but also for ern set of golf clubs typically the horse races held at the numbers 14, a basic hickory set has fewer clubs. The late Ralph Governor's Cup remains a pres-Livingston III, one of the piotigious event, attracting enthu neers of modern hickory golf. siasts from far and wide. recommended a six-club collection as a basic starter play set. Hickory Golf: A Return to

and fairway wood, about 13-14 degrees loft Hickory golf, played with hickory-shafted clubs, harks back to *Mid-Iron*, for long iron shots,

ous societies worldwide, hickory Mashie, for approach shots, golf reintroduces 'feel' to the game, challenging players to about 34-36 degrees loft. restore and use vintage clubs.

about 25-27 degrees loft.

Niblick, approach and pitch shots, about 43-47 degrees loft.

Brassie, serves as both a driver

- Niblick, lofted for bunker and pitch shots, 52 -57 degrees loft.

Putter, for putting. In conclusion, Forgan of St Andrews stands as a beacon of golfing excellence, bridging the gap between tradition and innovation. From its humble beginnings in the 19th century to its global reach in the modern era. Forgan's legacy lives on through its craftsmanshin and contribution to the 'great game of golf.

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#TRENDING

India's most Instagrammed tourist hotspots

Mumbai's Gateway of India leads ranking with 700,000 hashtags per acre



1. Gateway of India

Mumbai's top tourist destination stands on the waterfront in Colaba, in the city's south, overlooking the Arabian Sea. With 700,000 hashtags per acre, it is India's most Instagrammed destination in 2024. Built by the British, the structure combines elements of Hindu and Muslim architectural styles and serves as a gateway to explore the rich history and vibrant culture of Mumbai. It's also free to visit, which helps boost its popularity.

2. Jama Masjid

Located in Old Delhi, this large mosque was built by Mughal Emperor Shah Jahan and can accommodate more than 25,000 people in its courtyard. The marble and red sandstone structure is a rare place of tranquillity in the very heart of Old Delhi's mayhem. It has four watchtowers and two towering minarets, one of which visitors can climb for breath-taking views of the city.

The third most Instagrammable spot in India is Hawa Mahal, with 261.326 hashtags per acre. Located in Jaipur, this five-storey red and pink sandstone structure is constructed from the same salmon-toned stone used in the construction of Abu Dhabi's first Hindu temple. Famed for its intricate latticework, Hawa Mahal was originally designed to allow royal women to observe street festivals while remaining unseen.

4. Patrika Gate

Jaipur's *Patrika Gate* is, perhaps, a surprising entry on the list, given it's not as famous as other monuments in the country. But with 186,667 hashtags per acre, it ranks as the fourth most Instagrammable spot in India.



Travellers can find it at the entrance Mumtaz Mahal. Crafted from pris to Jawahar Circle Garden, where its tine white marble, it attracts milcolourful and intricate frescoes lions of visitors each year. reflect traditional Rajasthani art and 7. City Palace

architecture. It's also a relatively new

Amrit Sarovar Lake. Built in the

Shah Jahan for his third wife,

Islamic architectural styles.

City Palace in Udaipur is a striking place of beauty on the banks of Lake Pichola. Built by Udai Singh II, the Glistening in the Amritsar sun, Sri Maharana of Mewar in 1559, this Harmandir Sahib, or the Golden fortress was erected as a point of Temple has clocked up about 75,000 strategic defence. The largest palace in Rajasthan, surrounded by balhashtags per acre on Instagram. The sacred site is regarded as the conies, towers and domes, it offers visholiest temple in the Sikh faith and itors a glimpse into history and stunis famed for its gold-plated exterior ning views, helping it record 50,600 and views of the surrounding hashtags per acre on Instagram

8. Nahargarh Fort 1500s, the temple blends Hindu and

The fort in Jaipur's Aravalli Hills is known for being one of the best places to take in panoramic views of One of the Seven Wonders of the the city. With 50,244 hashtags per World, and arguably India's most acre on Instagram, Nahargarh Fort famous site, the Taj Mahal ranks dates back to 1734, when it was comlower on the list than might be missioned by *Maharaja* Sawai Jai expected, with just 61.905 hashtags Singh II as a retreat for royal fami per acre on Instagram. Located in lies to escape to. It has a charm of Agra, the mausoleum was built by its own.

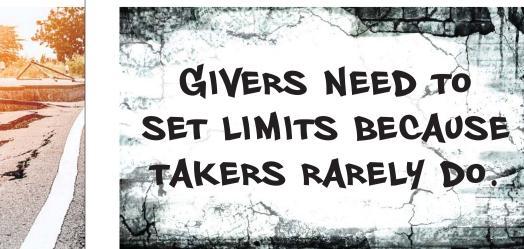
9. Outab Minar

One of the oldest surviving monu ments in India, Delhi's *Qutab Minar* has the tallest minaret in the coun try as well as the tallest brick minaret in the world, at a height of 72 metres. The UNESCO World Heritage Site clocked up 27,151 hashtags per acre on Instagram

10. Sanchi Stupa

One of the oldest Buddhist monu ments in the country, it is believed to house the ashes of the Buddha Beautifully proportioned, the nound-like structure shelters the original brick stupa inside and is encircled by intricately carved gateways. The Madhya Pradesh attraction racked up 23,857 hashtags per acre.

THE WALL



BABY BLUES



NICE DRAWING YOU DID OF OUR FAMILY

GETTING EATEN BY A GOPILLA. BUT

By Rick Kirkman & Jerry Scott

ZITS







By Jerry Scott & Jim Borgman