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# SAIT Newsletter, May 2019

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**T**ribology has deep roots in the historical study of friction. Some of the world's greatest scientific minds have grappled with friction, resistance and gravity.

For centuries, scientific thinking had been dominated by the ideas of Aristotle, who reached his conclusions without carrying out experiments to test them. Aristotle taught that moving objects only kept moving as long as they were being pushed, and that heavier objects fell faster than lighter ones. Galileo Galilei came up with a different set of ideas arrived at through experiment - he observed balls running down ramps and demonstrated that objects fall all at the same rate if air resistance is minimal. Galileo also concluded that moving objects continue to move, unless a force such as friction, acts to slow them down.



In 1971 US Astronaut, [David Scott](#), demonstrated Galileo's ideas about falling bodies by showing that a hammer and a feather fall at the same rate on the Moon which has almost no atmosphere to cause drag. (Extracted from: [The Science Book](#))

Scott validates [Galileo's](#) theory that objects in a vacuum will drop at the same rate, using a hammer and a feather (from [https://en.wikipedia.org/wiki/David\\_Scott](https://en.wikipedia.org/wiki/David_Scott))

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## ETT – Essential Tribology Terminology

### Four more simple definitions for of tribology's essential terms

- **Pour Point Depressant** - An additive which lowers the pour point of petroleum products containing wax.
- **Ring Sticking** - The seizure of the piston ring in its groove due to heavy deposits in the piston ring zone.
- **SABS** - South African Bureau of Standards
- **SANS** - South African National Standards



## SAIT Events:

### 1. SAIT AGM –

**Time:** 18:00 on Tuesday 14 May 2019

**Venue:** Science Park, 1 Northway, Kelvin, Sandton.

**Technical Meeting:** after the AGM – details to follow.

Please RSVP to [secretary@sait.org.za](mailto:secretary@sait.org.za) to ensure we cater sufficiently.

### 2. SAIT Annual Awards Dinner –

**Time:** 19:00 for 19:30 on Friday 17 May 2019

**Venue:** Cedar Woods Conference Centre,  
120 Woodmead Drive,  
Woodmead, Sandton.

**Speaker:** David Beard, SAIT Treasurer and  
Director, on 'The Milau Bridge'

**Cost:** R520 per person (incl. VAT)

**Dress:** Smart



The Milau Bridge



David Beard

The evening will include the presentation of the SAIT Awards - The Louw Alberts Award, the Best Technical Achievement Award, the Best Technical Presentation Award and the SAIT Student Award. The Awards will also feature in the SA Mechanical Engineer.

A cash bar will be available for your drinks and wine.

Tables seat 8 or 10 people.

Please email Gill, Isabel or Berice at [secretary@sait.org.za](mailto:secretary@sait.org.za) or [admin@sait.org.za](mailto:admin@sait.org.za) for a booking form.

## SAIT Training

**Follow the path from data to information and into knowledge:**

Please note that our next 5-day course, **Lubrication Engineering 120**, has been **MOVED to 20-24 May 2019**. This is to ensure that South African delegates will be able to vote in the South African 2019 Elections being held on 8 May.

[Register now](#) to ensure your place on this course. There is still space available

The SAIT Training schedule for the remainder of 2019 is:

LE 121: 27 - 31 May 2019, Durban

LE 123: 26 - 30 August 2019, Cape Town

LE 122: 22 - 26 July 2019, Johannesburg

LE 124: 7 - 11 October 2019, Johannesburg

**Costs: SAIT Members: R16 031 Non-Members: R17 894 Students: R4 922**

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### STLE examinations at SAIT

The South African Institute of Tribology will host three examinations of the Society for Tribologists & Lubrication Engineers (STLE) on **22 November 2019**. The venue is Science Park, Kelvin, and time is from 09:00 to 12:00. **The exams are open to SAIT members in good standing.**

- **Certified Lubrication Specialist (CLS):** Although not compulsory, it is highly recommended that you first attend the SAIT five-day 'Lubrication Engineering' course. A distinction of 75% is a good indication of success in the CLS exam, where the standard is high and the pass mark is 70%. The recommended books for the CLS exam are the STLE Alberta Section 'Basic Handbook of Lubrication' Third Edition, and/or the AIST 'The Lubrication Engineers Manual' Fourth Edition.
- **Oil Monitoring Analyst (OMA I and OMA II)**
- **Certified Metalworking Fluids Specialist (CMFS)**

Recommended reading for all modules is on the STLE website [www.stle.org](http://www.stle.org) under "Professional Development".

For further information, costs and to register, please contact Gill, Isabel or Berice at the SAIT offices: Tel. (+27) (0)11 804 3710 or email [secretary@sait.org.za](mailto:secretary@sait.org.za) or [admin@sait.org.za](mailto:admin@sait.org.za).

## International Events:

**15 – 17 May 2019 – SERBIATRIB '19 – 16th International Conference on Tribology** - will be held in Kragujevac (Serbia), at the Faculty of Engineering, University of Kragujevac - [www.serbiatrib.fink.rs](http://www.serbiatrib.fink.rs)

**25 to 27 June 2019 – 12<sup>th</sup> International Colloquium Fuels – Conventional and Future Energy for Automobiles.** *Colloquium Office:* Werner Schollenberger, email [werner.schollenberger@tae.de](mailto:werner.schollenberger@tae.de); *Registration and Accommodation Service:* online - [www.tae.de/go/fuels](http://www.tae.de/go/fuels), email: [Alexandra.fisch@tae.de](mailto:Alexandra.fisch@tae.de); *Venue:* Technische Akademie Esslingen e.V., an der Akademie 5, 3760 Ostfildern.

**In January 2020** the 22<sup>nd</sup> International Colloquium Tribology will take place at the Technische Akademie Esslingen. The conference provides an international exchange forum for the industry and the academia. Leading university researchers present their latest findings, and representatives of the industry inspire scientists to develop new solutions. Discussions and co-operations enable attendees to meet current tribological challenges.

One of the main topics is the forthcoming e-mobility technology, its various aspects and its consequences for the lubrication and tribology community. Abstracts can be submitted via this website [www.tae.de/go/tribology](http://www.tae.de/go/tribology). The closing date for the submission is **31 May 2019**.

## **Water is not a lubricant.**

During times of drought it is too easy to slip into overlooking water as a contaminant. The recent floods in Durban were a jolt for truck fleet operators when water in fuel lines brought daily operations to a halt. Water in diesel fuel also favours the growth of HUMbugs that shorten filter life, while ice crystals can block the system in a rapidly approaching winter.

*Water in fuel allows the existence of fungus and bacteria that live in the water while feeding off the hydrocarbons found in fuel. These contaminants are known by the name **Hydrocarbon Utilizing Microorganisms**, or by the acronym of **HUMbugs**.*

Internal combustion engines produce sulphur and nitrous oxides which water easily combines with to form acids, notably highly-corrosive sulphuric acid  $\text{H}_2\text{SO}_4$  and nitric acid  $\text{HNO}_3$ . Corrosion accompanies increased friction and failure – a cascade of events stemming from water.

In this electronic world there are systems using sensors to detect water in bulk fuel storage tanks. But sensor failure can lead to absence of recording water contamination – there should be a fail-safe method for both sensor failure and water detection. There is no substitute for regular checks with a reliable water-finding paste – this works in Africa.

A detailed article on **Hydrocarbon Utilizing Microorganisms** appeared in FleetWatch magazine in March 2000 – if you would like a pdf copy of this please contact the SAIT Assistant Secretary at [admin@sait.org.za](mailto:admin@sait.org.za) or go to the [SAIT Newsletters page](#), scroll down to the 2019 tab, find the article labelled 'SAIT Newsletter, May 2019 – 'Bah HUMbug'.

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## **DID YOU KNOW?**

### **What does the SAIT emblem represent?**



The simple emblem design representing the SAIT is tribology at work – the emblem embodies the concept of a thin lubricant layer separating a ball-bearing from metal.

## **PARTING SHOT**

### **A Few Very Serious Questions from SAIT**

#### **Do you know:**

1. What proportion of your costs is used to overcome friction & wear?
2. Whether your procurement policies adequately cover tribological materials and components?
3. The policies that cover component failure?
4. The strategies in place covering plant & product maintenance and lubrication?
5. Whether the types of lubrication & consumption of lubricants are being monitored?
6. How environmental conditions in an industrial plant can affect tribological performance?
7. How often the health and safety implications of using tribological components and processes are being reviewed (Asbestos for example)?
8. If there is a person responsible for implementing sound tribological practices?

*A prominent lube industry spokesperson offers a warning – “There are so many backyard blenders in South Africa – it’s quite scary”. It’s only through strategy, policy, procedure and training derived from the above questions that this situation can be controlled.*

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