Prelim Bits 11-05-2017

Kodaikanal Solar Observatory

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- Every day, **since 1904,** staff at the Kodaikanal Solar Observatory in Tamil Nadu have aimed their telescope at the sun, freezing the images of its disc.
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- This data has now been digitised by astrophysicists from the Indian Institute of Astrophysics, Bengaluru, and opened up to the public.
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- Apart from use in academic studies, the data can be used to better **understand sunspot activity which impacts climate and affects telecommunication systems.**
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- It also throws light on major events that had an impact on the earth's magnetic field.
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- While **'spectroheliograms'** were taken at the Kodai observatory since 1902, it was in 1909 that the data was used to discover the **Evershed effect** – that gases in sunspots flowed radially outwards.
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- The discovery by John Evershed put the KSO at par with the best observatories in the world. But its importance eventually declined as it was not upgraded or maintained.
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29th India-Indonesia Corpat

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- The 29th series of India–Indonesia **Co-Ordinated Patrol** (CORPAT) is scheduled from 09 – 25 May 2017.
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- **Apart from securing the trade sea route,** the Coordinated Patrol also serves to enhance mutual understanding and inter–operability between the two navies.

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- The CORPAT thus reflects the shared concerns between the two countries for a peaceful Indian Ocean for the benefit of international community.
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- Indonesian Navy and the Indian Navy have been carrying out coordinated **patrolling twice a year since 2002** near the International Maritime Boundary Line to keep this part of the Indian Ocean region safe and secure.
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LOTUS HR Project

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- The project **LOcal Treatment of Urban Sewage Streams for Healthy Reuse** (LOTUS HR) is an Indo-Netherlands joint project funded by Department of Biotechnology (DBT), Govt of India and NWO/STW, The Govt of Netherlands.
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- The project aims to demonstrate a **novel holistic waste-water management approach,** that will produce clean water that can be reused for various proposes, while simultaneously recovering nutrients and energy from the urban waste water, thus converting drain into profitable mines.
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- Special attention will be paid to pathogen removal and removing conventional and emerging pollutants.
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- The project will develop an **innovative pilot scale plant,** suitable to cope with Indian conditions in a location specific manner.
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- The Minister of Science & Technology has laid the foundation stone to mark the **beginning of work on cleaning the Barapullah drain** in New Delhi today.
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Novel Molecule to Treat Cancer

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- A novel small molecule, designed and synthesised by Indian researchers, has shown promise in targeted killing of cancer cells.
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- **The molecule (Disarib)** works by binding itself to a protein called BCL2, which suppresses the death of cancerous cells.
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- While **BCL2 protein is produced in excess in cancer cells,** its expression is almost undetectable in normal cells. Hence, Disarib targets and kills only cancer cells while sparing normal cells.
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- Inside a cell there is always a balance between proteins that promote cell death **(apoptosis)** and those that suppress cell death.
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- When the proteins BAX and BAK that promote cell death get bound to BCL2, cell death is suppressed and cancer cells are able to live longer.
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- But, Disarib was able to disrupt the binding of BCL2 and apoptosis-causing BAK protein. This action induced the death of cancer cells.
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Measurement of Liveability Index of Cities

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- Ministry of Urban Development will launch measuring of Liveability Index of cities next month based on **indigenously evolved Index.**
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- Ministry of Urban Development will launch measuring of Liveability Index of cities next month based on indigenously evolved Index.
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- Cities will be **assessed on 15 core parameters** relating to Governance, social infrastructure pertaining to education, health and safety and security, economic aspects and physical infrastructure like housing, land use, energy and water availability, solid waste management, pollution etc.,
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- Cities will be ranked based on Liveability Index that would cover a total of 79 aspects.
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