KERATAN AKHBAR-AKHBAR TEMPATAN
TARIKH: 6 SEPTEMBER 2015 (AHAD)

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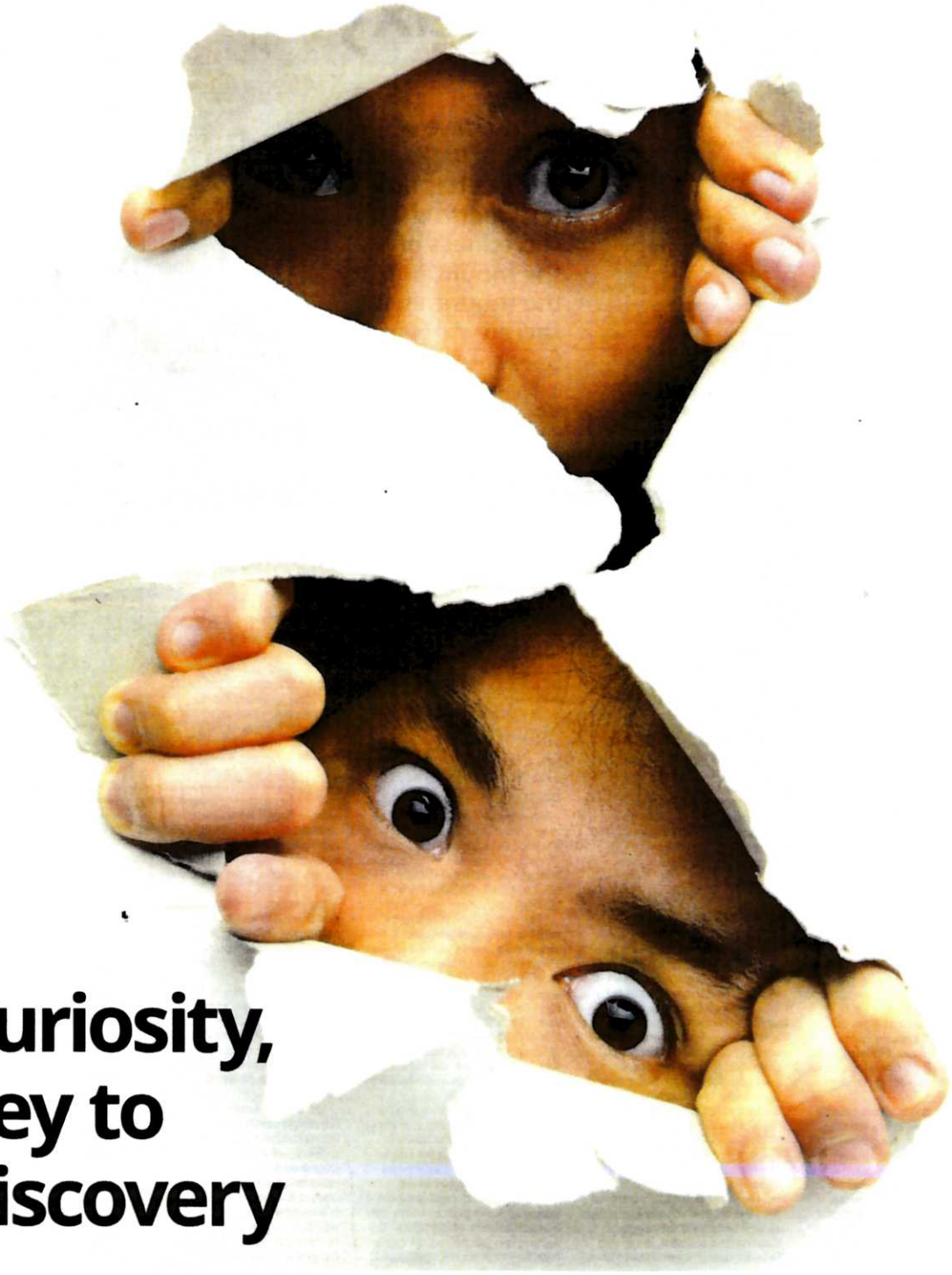
KERATAN AKHBAR
SUNDAY STAR (STAR SPECIAL): MUKA SURAT 1
TARIKH : 6 SEPTEMBER 2015 (AHAD)

Star special

INNOVATIONS MALAYSIA



Curiosity, key to discovery

KERATAN AKHBAR
SUNDAY STAR (STAR SPECIAL): MUKA SURAT 2
TARIKH : 6 SEPTEMBER 2015 (AHAD)

The people's guide to the galaxy

By TINA CARMILLIA

"OUR news is dominated by misery," wrote Ben Lillie. "We see invasions and racism and misogyny, drought and starvation and refugees."

"To many of us, science offers a respite from this, a place of curiosity and wonder. There is incredible solace in knowing that the objects of our study – the light from galaxies, the quarks and gluons bound into protons, even the chemical bonds in the strands of our DNA – are oblivious to these things," he continued.

Lillie is a former particle physicist-turned-science writer who specialises in finding stories of how science affects people's lives.

In his *Slate* article "Science Needs a New Ritual", he lamented about the problems that occur when scientists are disconnected from culture and history.

In that May article, he wrote about Hawaiians protesting against building a new US$1.5bil (RM6.3bil) telescope on the summit of Mauna Kea, a volcano considered sacred to the natives of the island.

The disgruntled reaction from the Hawaiian natives is not unlike the reactions of the natives of Sabah over the recent earthquake that struck the state.

Because the 6.0 magnitude earthquake (the strongest to affect Malaysia since 1976) occurred only days after 10 western tourists stripped and urinated on Mount Kinabalu – considered a sacred place by the natives – the locals believed that the aki (mountain protectors) had become angered by the lewd act.

The earthquake, which claimed the lives of 18 climbers and guides, sparked a debate that pitched local beliefs against scientific accuracy.

At least two academics cautioned against superstition, with one stating that earthquakes are clearly seismic events while another said supernatural beliefs gain traction when inexplicable disasters occur.

The Prime Minister's science advisor Tan Sri Prof Dr Zakri Abdul Hamid subsequently warned against any insensitive remarks while calling for respect and mutual understanding, saying, "Science would have a neutral look. Science has no answer (to the sacredness of the mountain). If the mountain is sacred, we have to respect that."

It is clear that in a community that is diverse in every sense, treading the fine line between science and traditional beliefs is a delicate but necessary act.

While science surrounds us, develops technology for better livelihood and contributes to the future of our civilisation, it is not always welcomed with open arms by the general population.

Vaccination – a medical breakthrough that has saved millions of lives – is still considered "evil" by some, for example.

Journey to the far side of imagination

Science has been harshly misunderstood or misrepresented, especially in the age of information.

When popular astrophysicist and science communicator Neil deGrasse Tyson reviews the technical accuracy of sci-fi films and television, audiences tend to react negatively to his critiques, even doing so openly on his Twitter page.

This is puzzling because he is, after all, the science expert. Would the audience prefer to be misled by pseudoscience instead?

"Science experts do not line up to critique *Cloudy with a Chance of Meatballs*," he explained, referring to the popular 2009 animated film by Sony Pictures Animation.

"To 'earn' the right to be criticised on a scientific level is a high compliment indeed."

When a film or television show aims to popularise science based on a scientific premise but fails to do so in an accurate or at least plausible manner, it loses its credibility because it has failed to achieve its aim, he rationalised.

Of course, scientists should not be too nit-picky about the technical details of sci-fi films or literature – they are produced with entertainment in mind, after all.

A lot of things that happen on television or films do not happen in the laboratories. You cannot pick up a strand of hair and instantaneously be able to identify the individual who owns it with a DNA test, then have his exact GPS location pop up on a computer display.

The rise of the planet of the thinkers

Scientists who turn on their televisions every once in a while to watch forensic crime shows or intergalactic exploration series do so not to find inspiration or gain new ideas – let alone to expect anything realistic.

"However, for the 'real' world, it is a very unfortunate tendency for the public to not pay attention to scientific stories – too hard, they'd say – and it is exacerbated by a tendency for practising scientists to disdain communicating with the public," says Prof Christopher Cramer, professor of chemistry and associate dean at the University of Minnesota.

"The latter point likely reduces the pool of good science journalists as well because if they begin training as a scientist, many will face discouragement if they choose to pursue a career in scientific communication."

Science would have a neutral look. Science has no answer (to the sacredness of the mountain). If the mountain is sacred, we have to respect that.

Tan Sri Prof Dr Zakri Abdul Hamid

Another complicating factor, adds Prof Cramer, is that much of the modern media sees itself competing with the rest of the entertainment industry.

So science is presented in an alarmist fashion (he calls it "gee-whiz fashion") or whatever way that will drive clicks to a website, which rarely paints any sort of picture that informs the non-scientific public.

Prof Cramer emphasises that his viewpoint is perforce US-centric but it is in fact not too far from the realities in Malaysia. By that deduction, it is not surprising if it is true everywhere else in the world too.

The academia strikes back

The case of the meromictic lake in Kerachut Beach in Penang National Park is one local example given by Alianie Mustaffa, marine biology researcher and PhD candidate in Universiti Sains Malaysia, Penang.

"The meromictic lake is very rare but no one appreciates it. It is one of only four of its kind in Asia. There was previously some talk of building a large resort in that area, which will definitely affect the flora and fauna as well as the turtle hatchery located nearby," she says.

A meromictic lake has layers of water that do not intermix, which creates radically different stratification of environments for organisms to live in.

Such lakes can form when the basin is unusually deep and steep-sided compared to the lake's surface area or when the lake's lower layer is highly saline and denser than the upper layers.

"On top of that, regular resort maintenance is high but with the delicate balance of the lake's natural conditions and the turtle hatchery to preserve, operational costs will definitely soar.

"Would the resort operators actually do that or would they do just the minimal – which would be enough for the business and tourists, but certainly not for nature?" she questions.

The scientific community in Penang, however, triumphed when the development for the resort was halted.

"I'm not anti-development," says Alianie, "but it is rational to demand for sustainability. We need researchers who are not afraid to voice their opinion and for the media to allow our voices to be heard."

However, Prof Cramer cautions that there has also been the extremely unfortunate trend of certain scientific topics becoming aligned with highly polarised political debates.

He claims that the media in general, which has a tendency to avoid committing itself to being an arbiter of truth, treats these issues the way it treats political issues – each side gets to make points in a fashion that appears "fair and balanced".

Yet, as the climate change topic has amply illustrated, that means that scientific opinion that is 99:1 in favour of a certain conclusion (based on 99% confidence interval on various peer-reviewed research studies independent of each other) is constantly presented as 50:50, which is an inaccurate representation – and thus, dangerously deceiving.

Mission possible

When a breakthrough in research does make it to the front page, its agents are often badgered with calls for commercialisation.

But not all discoveries lead to products that can be commercialised.

The discoveries of DNA and chemical elements, for example, are research findings that unravel the secret of life and our existence and not the kind to be patented or branded and marketed as these are naturally occurring compounds.

Even when a research does lead to a product meant for commercialisation, it will take years if not decades, for it to enter the market.

The chemical engineering researchers in The University of Nottingham Malaysia Campus, for example, have been working on a turmeric treatment for cancer for the last few years.

Still, the nanodrug's commercialisation will not be possible until another decade as it will have to undergo different scales of clinical trials and subsequently obtain approval from the regulating bodies.

Nevertheless, budding researchers should not feel demotivated by the realities of research efforts in the real world.

The nation's science, technology and innovation field still has room for growth and the potential to flourish.

Hartalega Holdings Berhad, the world's largest manufacturer of nitrile gloves, is just one of the success stories that Malaysia can be proud of in terms of innovative solutions.

Kuan Mun Leong, managing director of Hartalega Holdings Berhad, advises, "For Malaysia to remain globally competitive, we have to continue focusing on product innovation, technological innovation and talent."

Sure, there will be many hours spent in the laboratories with tedious and perhaps unexciting repetitive tasks, failed experiments, thousands of logs of data to analyse, and many a proposal to write for funding or publication.

While it may not be as swift and cool as it is portrayed in fiction, embrace the quest for new knowledge and know that you are providing useful service to the people, planet – or universe – and future.

KERATAN AKHBAR
SUNDAY STAR (STAR SPECIAL): MUKA SURAT 4
TARIKH : 6 SEPTEMBER 2015 (AHAD)

Science's silliest and strangest observations

THE 25th First Annual Ig Nobel Prize Ceremony this month will introduce 10 new Ig Nobel Prize winners to honour those who have done something that at first makes people laugh then makes them think.

While the awards are sometimes gently veiled with satire, the acknowledgment of some of these achievements in science is important to showcase that even the most absurd of research can yield useful knowledge.

The name is a play on the words ignoble, which means dishonourable in character or purpose, and the Nobel Prize, which the award ceremony makes a parody of.

Nonetheless, the prizes at the Ig Nobel ceremony are presented by genuine Nobel laureates and the event is graced with the premier of an original (but silly and strange) mini-opera each year.

This year, the mini-opera, The Best of Life, is about a competition to choose the best species of life.

Here are some of the winners from last year's ceremony:

● **Physics Prize**

Winners: Kiyoshi Mabuchi, Kensei Tanaka, Daichi Uchijima and Rina Sakai for measuring the amount of friction between a shoe and a banana skin, and between a banana skin and the floor, when a person steps on a banana skin that is on the floor.

It turns out that, just like depicted in cartoons, banana skins are indeed quite slippery, coming ahead of apple, citron and tangerine peels.

What makes banana peels so slick? According to the scientists who observed them under a microscope, crushed banana peels produce a gel-like substance that might be the source of the slipperiness.

● **Neuroscience Prize**

Winners: Jiangang Liu, Jun Li, Lu Feng, Ling Li, Jie Tian and Kang Lee for trying to understand what happens in the brains of people who see the face of Jesus in a piece of toast.

The researchers found that face pareidolia, a phenomenon where people perceive a pattern of familiar faces on objects such as toasts and clouds, is perfectly normal.

The findings suggest that the human brains are wired to identify faces so that even when there is only a slight suggestion of its features, the brain interprets it as a face.

Rob Rhinehart.

● **Psychology Prize**

Winners: Peter K. Jonason, Amy Jones and Minna Lyons for collecting evidence that people who habitually stay up late are, on average, more self-admiring, more manipulative and more psychopathic than people who habitually arise early in the morning.

The study finds that night owls are more likely to be linked to the "Dark Triad" of personality traits – narcissism, Machiavellianism and psychopathic tendencies.

Dr Jonason says that there may be an evolutionary basis for the link, suggesting that those with Dark Triad traits may have adapted to night activities to avoid detection.

He says that a low-light environment where most people are asleep facilitates risk-taking activities as most crimes and sexual activities peak at night.

● **Public Health Prize**

Winners: Jaroslav Flegr, Jan Havlícek and Jitka Hanušova-Lindova; and David Hanauer, Naren Ramakrishnan and Lisa Seyfried for investigating whether it is mentally hazardous for a human being to own a cat.

The award was split between two teams. The first team recorded personality changes in young women who own cats as well as a decline in intelligence quotient levels and adventure-seeking behaviour in men who were infected by a common parasite found in cat excrement.

The other team went through the medical records of 1.3 million patients and found that depression was relatively common among women who had reported being bitten by cats.

Simple and straightforward

Some of the world's top thinkers are also invited to the Ig Nobel Prize Ceremony to present what they are thinking about in a lecture series called 24/7, in which each lecturer explains his or her topic twice: first a complete technical description in 24 seconds, then, a clear summary that anyone can understand in seven words.

Here are some of the highlights from the past years' 24/7 lectures:

● **Metabolism (2014) by Rob Rhinehart, creator of Soylent, an open-source nutritional drink**

In 24 seconds: "Metabolism can be understood as two complementary processes: catabolism, which breaks down organic matter into constituent matter and energy via cellular respiration, and anabolism, which builds these components back up into useful complexes such as proteins and nucleic acids.

"Enzymes are the proteins that are keys to these chemical transformations. Fundamentally, metabolism is about controlling the flow of energy which originates in the super-hot core of the sun via fusion."

In seven words: "Thanks to enzymes, humans are solar-powered."

Organisers' note: After this lecturer was done, the attending Nobel laureates were given glasses of Soylent to drink. Most of them drank it.

● **Statistics (2013) by Xiao Li Meng, professor of statistics at Harvard University, department chair and dean of Harvard Graduate School of Arts and Sciences**

Prof Xiao Li Meng.

In 24 seconds: "Z-test, T-test, chi-squared test, I can help you to face any test. Bayes, frequentist, fiducial: let me make you feel influential. Regression, correlation, causation: what else can generate more passion? Skewedness, kurtosis, heteroscedasticity: boy, do I feel sexy!"

In seven words: "The only crystal ball approved by God."

● **Writer Identification (2010) by Neil Gaiman, author and winner of Hugo, Nebula and Carnegie Prizes**

Neil Gaiman.

In 24 seconds: "Whenever you are in doubt as to whether the thing on the back of the book jacket is a writer or a bacterium, given the human population of six billion people and positing that no more than half of them are published writers, that gives us a maximum of three billion writers.

"There are about five nonillion bacteria on this planet. So the chances of a random life form on the back of the book jacket being a bacterium and not a writer are roughly three sextillion to one."

In seven words: "It's probably a bacterium, not a writer."

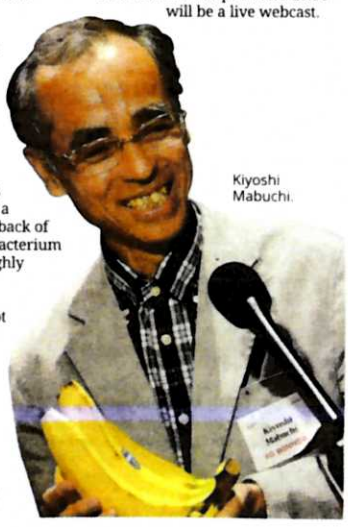
● **Redundancy (2008) by William Lipscomb (d.2011), Nobel laureate, professor of chemistry at Harvard University**

In 24 seconds: "Redundancy. Exceeding what is unnecessary. Superfluous. Verbose. You find this throughout, and yet the content is not there, but the content is always there..." (Time called by the referee)

In seven words: "The source of real original thought is not present in the definition of redundancy." (Actual number of words used: 14)

According to the organisers, who also collect improbable research that are published in *Annals of Improbable Research*, the goal of their bizarre efforts is to spur people's curiosity and to raise the question: "How do you decide what's important and what's not, what's real and what's not – in science and everywhere else?"

The 2015 Ig Nobel Prizes will be awarded on Sept 17 and there will be a live webcast.



Kiyoshi Mabuchi.

KERATAN AKHBAR
SUNDAY STAR (STAR SPECIAL): MUKA SURAT 6
TARIKH : 6 SEPTEMBER 2015 (AHAD)

Towards a better world

A NEW area of Fujifilm is healthcare and allied businesses. Fujifilm aims to position itself as a comprehensive healthcare company and sees this as an important sector for the company's long-term growth, based on opportunities within the areas of prevention, diagnosis and treatment.

Fujifilm has taken a fresh look at currently unsolved challenges in healthcare and identified many that could be solved using its advanced technologies, experience and expertise.

In fact, Fujifilm has been involved in the medical diagnosis field for some time, introducing its first X-ray film to the market in 1936, shortly after the company's founding.

In 1971, Fujinon Corporation (a former subsidiary) introduced an endoscope. In 1983, the FCR (Fuji Computed Radiography) digital X-ray diagnostic system was introduced, and it remains the de facto industry standard.

Fujifilm's Synapse digital image storage system, used with hospital server-based medical imaging and information management systems, has been sold to about 4,000 facilities around the world since its introduction in 1999.

In March 2012, Fujifilm acquired Sonosite, a leading US manufacturer of portable ultrasound diagnostic equipment.

The acquisition is expected to ultimately form a new pillar of growth in Fujifilm's medical systems business.

Treatment and healthcare

Another major development has been Fujifilm's entry into the pharmaceutical market.

This has largely been achieved through the acquisition of existing pharmaceutical companies, with three main areas of focus: low molecular pharmaceuticals, biopharmaceuticals and regenerative medicine.

Clinical trials of Fujifilm pharmaceuticals are underway, often in association with prestigious institutions outside of Japan.

A Phase II clinical trial of a treatment for Alzheimer's diseases is in progress, in collaboration with the Alzheimer's Disease Cooperative Study, one of the largest research consortiums for the study of Alzheimer's-type dementia.

In collaboration with the University of Texas MD Anderson Cancer Center, clinical trials have been underway since August last year for the anticancer drug FF-10501, which has been developed by Fujifilm to treat patients with relapsed or refractory myelodysplastic syndromes.

Fujifilm believes that the company's experience in areas outside the pharmaceutical industry gives it an advantage over its competitors in the field.

With Fujifilm's experience in nanotechnology – gained through the photographic film business – and its expertise in analytic techniques, synthesis and production technologies – also obtained through the film business – Fujifilm might be able to develop and produce pharmaceutical products that enable it to compete head on with the largest pharmaceutical industry players.

Success through innovation

Much of the Fujifilm's success outside its traditional core business may be ascribed to investments in research and development (R&D).

Not only does Fujifilm invest a considerable amount in R&D, but the way in which research is carried out is conducive to the development of new areas such as highly functional materials and healthcare.

Over the past 15 years, Fujifilm has spent an aggregate of about US$24bil (RM101.28bil) on R&D.

Not all the investment in R&D is expected to produce immediate results.

Much of it is part of Fujifilm's medium- and long-term strategies, with a short-term loss of efficiency being accepted.

However, the technology resulting from this research, when mature, is intended to provide long-term support for the company's operations.

Shigetaka Komori, chairman and chief executive officer of Fujifilm Holdings Corp, points out, "Innovation cannot occur simply by the use of a single technology; it only comes through fusion."

Accordingly, the company has set up Fujifilm Advanced Research Laboratories, a multidisciplinary company-wide research centre near Tokyo.

The facility provides an environment in which Fujifilm researchers from different fields can collaborate and share ideas. This way, they contribute to each other's knowledge, and their creativity and collaboration is stimulated.

The different fields studied in the research centre include chemistry, mechanical engineering, electronics, optics and software development.

Through the cooperation of the researchers in the different fields, the facility is engaged in the development of new Fujifilm products and enhancements to Fujifilm's existing products.

Developments showcasing this fusion approach include Fujifilm's range of skincare products (which the company describes as functional cosmetics), a transparent sensor film for touch panels (Exclear) and heat barrier films.

Developing new drugs for better lives

Fujifilm is using its cutting-edge research to open new horizons in medicine. It is researching innovative drugs that have the potential to improve the lives of patients suffering from Alzheimer's disease, cancer and other conditions.

Fujifilm is developing a candidate drug for Alzheimer's disease, thanks to research in collaboration with the Centre for iPS Cell Research and Application at Kyoto University in Japan.

These efforts have been made possible through the integration of Fujifilm Group's medical technology with proprietary technology developed over the years in its imaging technology field. Fujifilm's goal is to create new hope for people through medical research.

Synapse (PACS)

Fujifilm's medical imaging and information management system allows for effective filmless diagnosis with high-quality image processing.

Fujifilm's medical imaging and information management system, Synapse, allows the archiving and distribution of vast amounts of image information from all modalities, managing it all with a single system.

With the first comprehensive PACS (picture archiving and communication system) with next-generation Web technology, Synapse uses the latest Wavelet compression technology for on-demand compression and provides quick and easy access to large files regardless of location.

Synapse has revolutionised the management of radiology imaging services, supporting image diagnosis with high-quality images, numerous image processing features and easy operation, affording exciting new possibilities in this rapidly evolving medical field.

Working with others

Besides taking advantage of the wide areas of expertise to be found within the group, Komori wants Fujifilm to cooperate with academic institutions and researchers from other companies.

To that end, and to mark the 80th anniversary of the company's founding, it established the Open Innovation Hub in its Tokyo headquarters.

Here, Fujifilm displays its foundation core technologies, materials, products and services to potential development partners, including representatives from other companies and academic institutions.

Komori believes that new value is achieved by working together with users and potential users of Fujifilm products and services, and assessing their needs.

Komori is considering expanding the Open Innovation Hub concept to the US and then to Europe, bringing about cooperation among people with a wider range of skills, to lead the development of new products and product lines.

Of course, the photographic side of Fujifilm's business has not been forgotten, and innovation has taken place in this area as well.

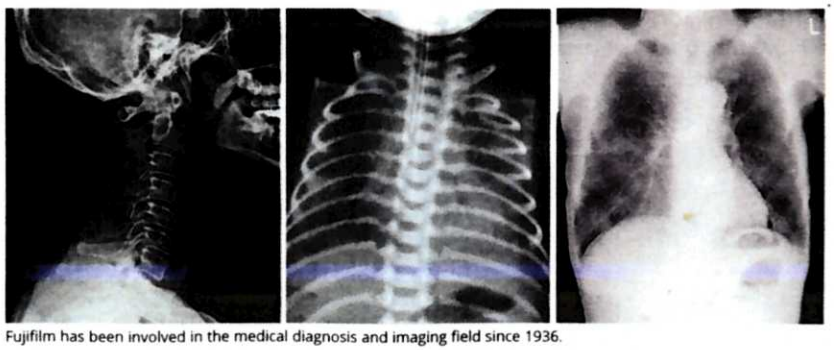
Fujifilm's X-Series – which includes mirrorless system cameras – premium compact cameras, prints from digital data and the Fujifilm photobook creation service, as well as the Instax line of instant cameras, film and printer products all bear out Komori's words that the company's mission includes "preserving the culture of photography".

As Fujifilm moves forward by building on its past successes and expertise, it also continues to support its original, core businesses.

This is good news for photographers of all levels around the world, including users of single-lens reflex cameras and compact cameras.

At least one name in the business – Fujifilm – still has their interests very much at heart.

■ For more information, visit *www.fujifilm.com*



Fujifilm has been involved in the medical diagnosis and imaging field since 1936.

KERATAN AKHBAR
SUNDAY STAR (STAR SPECIAL): MUKA SURAT 8
TARIKH : 6 SEPTEMBER 2015 (AHAD)

Driving modern change

RISK taking is essential to social and technological development. Sometimes, an outrageous idea can yield a practical solution to everyday problems.

The desire to transition from fiction to fact is the muse for researchers to dive into areas of research never before explored.

One hundred and fifty years ago, not many could have imagined the existence of mobile phones, manned flights, wireless communications, satellites, televisions and more.

Here are some innovations and inventions that have changed the world in ways we could have never imagined.

The James Webb Space Telescope.

The Geosensor is used to detect seismic activities.

GPS technology and earthquake forecasting

Earthquakes are one of nature's most devastating forces; they wreak havoc wherever they hit and cause severe damage to infrastructure as well as loss of lives.

Scientists in the fields of geology, seismology and geophysics are constantly working on understanding earthquakes and have achieved amazing accomplishments in the field.

Currently, scientists are utilising Global Positioning System (GPS) technology to understand and study seismic activities of t he Earth's lithosphere, which extends to attempts to track the activities of fault lines along plate tectonics.

The breakthrough came in 1989 when an earthquake hit San Francisco where geophysicists mounted GPS stations on the ground in the area.

By comparing the data collected before and after the earthquake, they were able to determine the direction and speed of the movement of the ground, which led to a great deal of understanding about the nature of earthquakes.

The main focus of current research is to figure out a method that will allow scientists to produce forecasts from precise data for an early warning system that could prevent the loss of lives and allow construction engineers to build better infrastructure to withstand the devastating effect of an earthquake.

Earthquakes like Nepal's or the recent seismic activities that took place in Sabah are events that cannot be prevented.

However, with an early warning system that uses GPS technology, authorities can take proper action prior to their occurrence and be able to manage the disaster zone effectively with minimal drainage of resources.

Billboard water

Since the invention of billboards in the 1790s, they have become one of the most popular means of advertising across urban and rural landscapes.

Thanks to technology, billboards are no longer dependent on printed media.

One recent technological innovation for billboards is changing the world – it filters and collects water from humid air surrounding the billboard.

At the University of Engineering and Technology of Peru, a team of research engineers have devised an ingenious way to amass the saturated water of Lima's humid air using nothing but simple filtration and the assistance of the Earth's gravity.

The simplicity of the system not only allows people to gather and retain drinkable water, it opens unlimited potential to irrigation.

Using electricity, the device employs an inverse osmosis filtration system.

Five filtration systems were installed in designated billboards around Lima.

They generated approximately 10,000 litres of water in the first three months of operation, serving the consumption needs of hundreds of families.

Strategic placement of such systems can transform the lives of billions of people on the planet and provide drinking water to locations that have none.

Reusable rockets for space travel and orbital flights

Curiosity has always driven mankind to mark out new frontiers. The desire for manned flights to space has driven human ingenuity to produce the most impressive accomplishments in our history.

In fact, most of the gadgets we use in our daily lives have depended, one way or another, on research that was part of various space programmes.

One of the biggest drawbacks of space travel, however, is the production of waste products known as space junk.

This comprises the leftover products from space launches such as rocket stage parts, dead satellites and other manmade hazards that present a serious threat to future space missions.

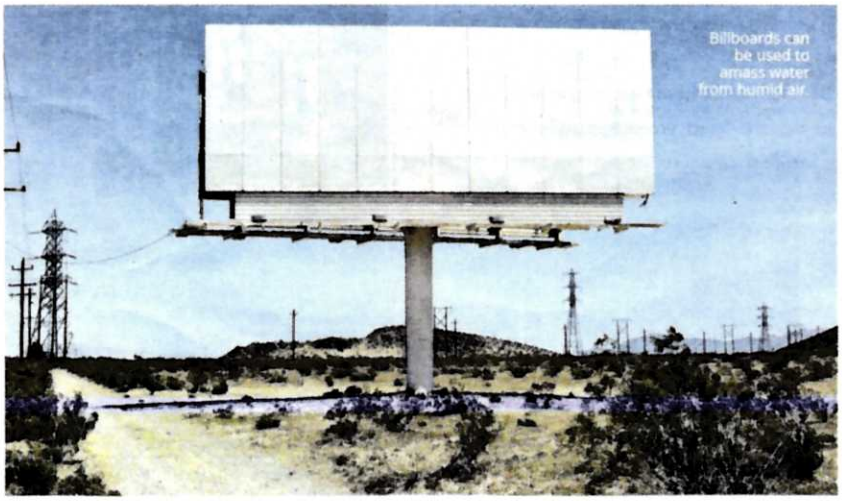
American private space industry company SpaceX, led by one of the most influential figures in the space exploration industry, Elon Musk, has come up with a plan to fix the problem.

The key to the solution is to stop dumping more junk into space and low Earth orbit.

Since rockets produce the most junk, SpaceX is researching the plausibility of building and operating reusable rockets.

The proposed solution is that instead of releasing the biggest part of the rocket into low Earth orbit or to crash into the Earth, a controlled descent of the first and the largest stage of the rocket takes place.

Once the stage is recovered and repaired post landing, it will be ready for its next mission.



Space telescope

The most fascinating images ever taken of deep space were the product of National Aeronautics and Space Administration (NASA)'s Hubble Space Telescope, which was launched in 1991 and perfected in 1993.

Hubble has done an astonishing job and collected data beyond our wildest imaginations.

It has successfully determined the age of the observable universe, confirmed the expansion of the universe and captured breathtaking images from space.

Nevertheless, Hubble's days are numbered. It is certain that Hubble will not be able to perform optimally beyond 2018.

The good news is that after years of research and innovation, NASA is already on its way to launching its new state-of-the-art space telescope that should dwarf the accomplishments of Hubble, if operations go according to plan.

Dubbed the James Webb Space Telescope, it hosts an array of instruments that will look at the universe in infrared light.

The launch is scheduled for 2018 and it will take approximately six months to achieve orbit at 1.5 million kilometres away from the Earth.

KERATAN AKHBAR
SUNDAY STAR (STAR SPECIAL): MUKA SURAT 10
TARIKH : 6 SEPTEMBER 2015 (AHAD)

Introducing discoveries to the masses

RESEARCH universities across the country are actively commercialising their technologies and innovations and setting up innovation and commercialisation centres (ICC) in their campuses to register these innovations as intellectual properties (IP).

These centres also promote the university's technologies and manage the agreements with companies that wish to acquire licences of the universities' innovations.

Leveraging on its 15-year history, Putra Science Park, the ICC of Universiti Putra Malaysia (UPM), has managed to license 97 out of the 1,800 intellectual properties it currently has.

The centre has on multiple occasions won the National Intellectual Property Award organised by the Intellectual Property Corporation of Malaysia in innovation management.

The highly supportive innovation-focused ecosystem in UPM has enhanced the culture of innovation and commercialisation among the university's staff, resulting in four UPM professors winning the prestigious Anugerah Akademik Negara in this category – the highest recognition given to academics who have made significant contributions to the discovery and development of science in the country.

Innovation Open Day (IOD) allows researchers and businesses to discuss new technology.

From theories to practical solutions

The general concept of Putra Science Park is to experiment on the idea of combining an ICC with a science park, which was inspired by the Quadruple Helix concept – an innovation concept that focuses on the relationship between universities, industry business, the Government and the general public.

In addition to the common channels of technology transfer, involving licensing and outright sales, new initiatives are done to encourage companies to open research and development (R&D) divisions in UPM.

This smart partnership allows businesses to utilise technical expertise from the university's researchers and graduate students while exposing them to continuous engagement with the industry and to work on innovations that fit market demands.

"The purpose of commercialising our technology is not primarily to make a profit, but rather to complete the full cycle of research and development.

"When we conduct R&D, ultimately we want our developments to be used by the community and not have them limited to lab-scaled versions, prototypes or reports and publications," says Assoc Prof Dr Samsilah Roslan, director of Putra Science Park.

UPM's pneumonia vaccine for goats.

But in order for commercialisation to occur, innovative solutions must first go through a long process of trials, procedures, market evaluations and collaborations with numerous parties.

"From research activities to production, an entire project would therefore involve legal practitioners, businesses, scientists and people who can help negotiate between the various parties to reach an agreement. Be it good or bad, we are answerable to the results of each project," says Assoc Prof Samsilah.

As an agricultural university, UPM is proud to have successfully introduced and commercialised animal vaccines that are used in more than eight countries for overcoming diseases such as fowlpox in poultry and pneumonia in goats.

UPM successfully commercialised animal vaccines to overcome fowlpox in poultry and pneumonia in goats.

Overcoming challenges

"Other research universities are interested in what we do as we are always pushing the boundaries and testing new ideas," says Dr Mohamad Fakri Zaky Ja'afar, deputy director of innovation promotion and marketing division at Putra Science Park.

Among the most apparent problems for any research university is finding businesses that are willing to take the risk in funding innovative projects and bringing untested technology from the laboratory to the market.

"When companies introduce a new and unproven technology, there is a phase called Death Valley where most new innovations fail – there is a possibility that the business model would not work in the market, forcing the closure of many innovative ventures," says Dr Zaky.

To meet potential funders and spread the word about its research, Putra Science Park organises a series of Innovation Open Days (IOD) events that feature small focused exhibitions tailored to industrial players, allowing staff to not only introduce their technology to industry agents but gain insight into the market and ideas for future research.

"We have organised seven IOD events over the last two years and these events yield a higher return in terms of generating industry interests compared to big exhibitions or conventions," says Dr Zaky.

Other challenges are for researchers to properly identify the problems, niches and needs of the market that should be addressed, as well as conveying messages effectively between scientists and businesses.

Putra Science Park solves this by learning the experiences from the Silicon Valley in the United States by inviting experts to conduct training programmes over a two-year duration and partnering with foreign research institutes such as Stamford Research Institute and University of California Davis.

"Efforts are also taken to mould a new breed of technopreneurs – business-minded scientists who will be able to drive start-up companies and make businesses out of new innovations.

"The advantage of such individuals is that they will have the capability to explain science effectively to potential funders and investors who may not have a technical background," says Assoc Prof Samsilah.

The centre has also played a key role in founding the Innovation and Technology Managers Association of Malaysia (Itma), a non-government organisation for universities and agencies that are involved in innovation and commercialisation in the country.

Itma provides its members with a platform from which to share important information regarding the industry, network among industry professionals, combine resources to come up with better technologies and educate the wider public regarding the processes behind innovation and commercialisation.

In line with UPM's mission, Putra Science Park will continue its efforts to impart knowledge with the wider community and introduce new technologies to the market.

With the support of various government ministries on UPM's commercialisation initiatives, Assoc Prof Samsilah is confident that Malaysia is on the right path to becoming an advanced nation.

■ For details, visit *www.sciencepark.upm.edu.my*

Dr Mohamad Fakri Zaky Ja'afar.

Assoc Prof Dr Samsilah Roslan.

Educating the young

UPM believes that there is a need to present science in a fun manner and to attract the younger generation to consider science as a career option.

One such initiative was establishing Edu-Park, an area within UPM consisting of science-related attractions that are open to the public.

"Among the attractions include the Putra Dairy and Deer Farm, Equine Centre, Human Anatomy Museum and Malay Heritage Museum.

"Visitors to these locations can choose among the 23 experiential learning modules available to learn more about the different aspects of science in an interesting way," says Assoc Prof Dr Samsilah Roslan, director of Putra Science Park.

"We also have an interesting series of exhibitions called Nyawa, which stands for Nature's Yield And Wonders of Art, where we establish through collaboration between our research scientists and designers from the university's Faculty of Design and Architecture to portray scientific material in art form," adds Dr Mohamad Fakri Zaky Ja'afar, deputy director of innovation promotion and marketing division at Putra Science Park.

The programme pairs scientists with designers to work on artistic artefacts that depict scientific concepts.

The themes featured in previous exhibitions were fruits, insects and microbes.

This year, the theme will be birds.

"We find that the public is more interested to engage with scientific concepts through art than by reading scientific papers and this makes it an interesting way to share scientific knowledge," says Dr Zaky.

"With all the amazing facilities the university has for learning and research, why not share it with the public?"

KERATAN AKHBAR
SUNDAY STAR (INNOVATION MALAYSIA) : MUKA SURAT 11
TARIKH: 6 SEPTEMBER 2015 (AHAD)

Solutions for society

MALAYSIA is home to savvy innovators with the wisdom and drive to address daily challenges that they face in their lives, including energy, food source and productivity issues.

A person with just an idea to resolve an everyday issue can in fact provide a solution to the whole community and benefit the industry by providing job opportunities, improving process efficiency and reducing cost.

These grassroots innovators are potential social entrepreneurs, especially if they are provided with the means and knowledge to license and commercialise their innovations.

Yayasan Inovasi Malaysia (YIM) takes up the mantle to ensure that creativity and innovation among Malaysians are promoted and inculcated through its various programmes such as Jejak Inovasi, School Club Innovation Toolkit, Teh Tarik Talk, Pop Innovation, and High Impact Programme 6 (HIP6) – Inclusive Innovation.

"We assist with developing a business plan so that the innovations can be marketable and eventually commercialised.

"Additionally, if it is a food product, we provide the technical resources to ensure that it can be packaged with its nutrition information, expiry date and even halal certification," says Abdul Razak Ahmad, YIM's HIP6 programme director.

With close support from SMECorp and the Science, Technology and Innovation Ministry (Mosti), these initiatives are set to become the benchmark for innovation development in the country.

Here are two success stories that have created positive impacts within the local communities.

Multi-purpose vehicle

In 2011, YIM discovered an innovation conceived by Wak Wagiman Dulahabedi, who is one of the most well-respected grassroots innovators in Muar, Johor.

He is well known for his prowess in fabricating agriculture machineries and transporters to help in the agriculture activities undertaken by the rural communities.

Wak Wagiman builds multi-purpose vehicles known as Gerabak Ayer Hitam (GAH). Fully aware that his oil palm planter community was in dire need of affordable machines and equipment to minimise the arduous task of gathering and transporting oil palm, Wak Wagiman created a multi-purpose vehicle that is versatile, adjustable, modular yet affordable.

The GAH can be modified and upgraded while parts and tools can be attached and detached according to the requirements of specific activities within the oil palm estates.

His vehicles are made out of recycled materials and parts but are still capable of handling the most rigorous demands of oil palm planters.

His innovation came about due to his own experience – facing difficulties in transporting oil palm in the plantation. His early ideas included a special wheelbarrow but the low carrying capacity and high manual energy requirement proved to be inefficient.

Without formal training and knowledge in building motorised equipment, Wak Wagiman, through perseverance and determination to improve productivity, overcame initial roadblocks.

His prototype involves a used Vespa gear box, while the body is made of used metal. The tyres are repurposed old ones from lorries.

The improved version of the multi-purpose vehicle is able to transport a variety of plantation products such as oil palm, pineapples and rubber and can be used in rural road tracks as well as peat fields that are soft and muddy.

Wak Wagiman's innovation attracted the attention of his neighbours and the nearby villagers, who requested for their own unit.

To cater to the rising demands, Wak Wagiman, through YIM's Jejak Inovasi, collaborated with Universiti Kebangsaan Malaysia Centre for Entrepreneurship, SMEs and Local Development (UKM-Cesmed) to improve his workshop and infrastructure with modern equipment.

The GAH units are sold at between RM7,000 and RM13,000 depending on its customised specifications and Wak Wagiman has successfully sold more than 100 units across the nation.

Hiliran Halia PME

When he was scouted in 2012 through YIM's Jejak Inovasi programme, Henry Charles of Kampung Botong in Tambunan, Sabah, was already producing various halal ginger-based products such as sweets, cordials, sauce and powdered drinks.

His ginger is sourced from Tambunan itself and his products are sold under the brand name Hiliran Halia PME.

With YIM's support, Charles received grants and assistance amounting to RM60,000 from Sirim, the International Trade and Industry Ministry, the Agriculture Ministry and YIM.

The fund has been used to improve various aspects of his products, including the image and graphic design of his packaging, labelling and branding.

With the assistance he has received, his company now employs a few locals to help with the production in his central kitchen in Kampung Botong. His kitchen includes several machines such as peeling, cooling, drying, extracting and packaging machines.

Hiliran Halia PME has received halal certification and is protected under the geographical indication intellectual property rights.

In the next issue of *Innovations* in December, YIM will feature two more success stories from its HIP6 case studies.

YIM is constantly on the lookout for grassroots innovators, small and medium enterprises seeking technology licensing, social enterprises and industrialisation opportunities in rural communities. YIM also welcomes corporate funding and industrial cooperation for its innovators' benefits.

■ For more information, visit *www.yim.my*

Henry Charles, innovator of Hiliran Halia PME, demonstrating one of the machines at his central kitchen in Kampung Botong, Tambunan, Sabah.

A multi-purpose vehicle known as Gerabak Ayer Hitam (GAH) built by Wak Wagiman Dulahabedi of Johor.

KERATAN AKHBAR
SUNDAY STAR (INNOVATION MALAYSIA) : MUKA SURAT 9
TARIKH: 6 SEPTEMBER 2015 (AHAD)

INOVASI INKLUSIF

INNOVATOR OF AFFORDABLE CNC MACHINE

MOHAMAD ROSLI ISHAK, 36

Even without formal tertiary education, Rosli can design and build CNC machines from scratch. He dreams of a future where every school children will be able to learn basic computer-aided design (CAD) and operate a CNC machine. Rosli is a HIP6 innovator and he is helping us bridge access.

If you are an innovator and have an innovation which is beneficial to the excluded groups such as the poor, single mothers or indigenous people, please contact us:

Tel: 03-8319 1714 Fax: 03-8319 1715

E-mel: hip6@yim.my Website: www.inovasiinklusif.com

YAYASAN INOVASI MALAYSIA
Unit E001, Ground Floor, Block 3440,
Enterprise Building 1, Jalan Teknokrat 3,
63000, Cyberjaya Selangor.

HIP 6 IS SUPPORTED BY:

MOSTI SMECORP

KERATAN AKHBAR
HARIAN METRO (SETEMPAT) : MUKA SURAT 22
TARIKH: 06 SEPTEMBER 2015 (AHAD)

Lencong penerbangan

Dua pesawat AirAsia terpaksa mendarat di Bintulu akibat kabus tebal

Oleh Harun Yahya
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Sibu

Dua penerbangan pesawat AirAsia, masing-masing dari Kuching dan Kuala Lumpur yang sepatutnya mendarat di Lapangan Terbang Sibu di sini, terpaksa dilencongkan ke Lapangan Terbang Bintulu berikutan kabus tebal dan jarak penglihatan terhad semalam.

Pengurus Lapangan Terbang Sibu Zainuddin Abu Nasir berkata, pendaratan pesawat di Lapangan Terbang Sibu di sini terjejas menyebabkan semua penerbangan terpaksa dilencongkan atas faktor keselamatan.

"Kedua-dua pesawat AirAsia itu yang mendarat di Lapangan Terbang Bintulu kemudian dibenarkan berpatah balik ke Lapangan Terbang Sibu sejurus selepas keadaan mengizinkan. Pesawat itu selamat mendarat kira-kira jam 9.50 pagi (semalam).

"Sebuah lagi pesawat ATR72 milik MASWings dari Kota Kinabalu juga terpaksa berlegar di udara selama 30 minit sebelum melakukan pendaratan susulan kejadian kabus," katanya.

FAKTA
Pesawat selamat mendarat jam 9.50 pagi semalam

Difahamkan, kabus tebal menyebabkan operasi penerbangan keluar dan masuk di Lapangan Terbang Sibu turut mengalami kelewatan selain beberapa lapangan terbang lain di Sarawak.

Sementara itu, jurucakap Jabatan Meteorologi Sarawak memaklumkan kejadian itu dikenal pasti berpunca akibat kabus tebal dan bukannya disebabkan masalah jerebu.

"Penyebaran maklumat di media sosial yang mendakwa kononnya penerbangan dilencongkan kerana masalah jerebu tidak benar sama sekali.

"Ini kerana penerbangan dilencongkan akibat berlaku kabus tebal antara jam 8 hingga 9 pagi (semalam) dengan jarak penglihatan cuma 2,000 meter di lokasi kejadian. Keadaan beransur pulih menjelang jam 10 pagi," katanya.

BERITA ONLINE
BERNAMA.COM
TARIKH: 06 SEPTEMBER 2015 (AHAD)

Kereta Terbakar Di Hilir Perak Mungkin Milik Pegawai Pejabat AG

HUTAN MELINTANG, 6 Sept (Bernama) -- Kereta yang ditemui terbakar di ladang kelapa sawit di Kampung Sungai Samak di Hilir Perak menguatkan spekulasi yang ia milik Timbalan Ketua Bahagian Perbicaraan dan Rayuan Jabatan Peguam Negara, Kevin Anthony Morais yang dilaporkan hilang.

Namun, Ketua Polis Daerah Hilir Perak ACP Mohd Shuhaily Mohd Zain berkata setakat ini, hasil siasatan polis tidak mempunyai sebarang bukti yang boleh mengaitkan kenderaan tersebut dengan identiti atau personaliti berkenaan.

Katanya, tindakan membakar kenderaan itu merupakan jenayah yang dirancang begitu rapi oleh pihak tertentu hingga polis tidak menemui sebarang bukti di tempat kejadian.

"Kita telah meminta bantuan daripada Bahagian Forensik untuk membuat pengesahan identiti kereta tersebut.

"Namun, sehingga kini kita masih gagal mengesan nombor casis pada kenderaan itu," katanya kepada pemberita di Pusat Operasi Mencari dan Menyelamat di Jeti Hutan Melintang di sini, hari ini.

Mohd Shuhaily juga berkata, tiada sebarang dokumen diperolehi di tempat kejadian berikutan keadaan kenderaan berkenaan musnah terbakar.

Beliau berkata penemuan kenderaan itu berdasarkan maklumat daripada beberapa saksi kejadian yang terdengar letupan serta seorang saksi melalui jalan tersebut secara kebetulan dan ternampak kenderaan itu terbakar.

"Kita akan bawa kereta itu ke Balai Polis Hutan Melintang dan menunggu bantuan daripada **Jabatan Kimia** untuk mengesahkan jenis kenderaan itu," katanya.

Mohd Shuhaily berkata Ibu Pejabat Polis Daerah Sentul menyiasat kes tersebut berkaitan orang hilang berikutan laporan dibuat mengenai kehilangan Morais.

Morais dikatakan kali terakhir dilihat meninggalkan pangsapurinya di Menara Duta, Kuala Lumpur pada Jumaat lepas untuk ke pejabatnya di Putrajaya.

Beliau dilapor memandu kereta Proton Perdana berwarna kelabu dengan nombor pendaftaran WA6264Q.

-- BERNAMA