

# Genes that give butterflies identical wings found

Cambridge University scientists have identified the genes which enable two unrelated species of butterfly to have identical looking wings. For some 150 years zoologists have puzzled over how two species of passion-vine butterfly - *Heliconius erato* and *Heliconius melpomene* - have evolved to look like each other.

In the Amazonian lowlands both species have spines of orange colour on their hindwings and patches of yellow in the middle of their forewings. But in the Andes they have a broad splash of yellow across their hindwings and solid patches of orange on their forewings.

Dr. Chris Jiggins, a zoologist at Cambridge University, said: "The similarity is incredible - even down to the spots on the body and the minute details of the wing pattern."

He explained: "That the two species have evolved to look exactly the same is due to predation by birds. The birds will try anything that looks different in the hope that it's good, so they learn that certain wing patterns are unpalatable and avoid them."

He added: "Anything that deviates slightly from what they've experienced (as unpleasant) before is more likely to be attacked."

Consequently the inedible butterflies, which are only distantly related, have evolved to look superfi-



cially identical.

The butterflies have been studied since Darwin's day, as an example of how different species can evolve independently to mimic each other, to better their chances of survival.

But this is the first time scientists have identified the actual genes responsible for such wing display 'adaptations', as they are known.

The discovery, published in the journal *Plos Genetics*, shows the regions of their genomes associated with wing patterns are very small, termed genetic 'hotspots'.

Dr. Jiggins said: "Our results imply that despite the many thousands of genes in the genome there are only one or two that are useful for changing this colour pattern." While these hotspots were found in the same part of both species' genomes, he said, the responsible genes' DNA sequences actually differed.

(Source: Daily Telegraph)



## Imagining a world of hardware mashups

The Bits blog is filled with reporting by the tech reporters of The New York Times. It is largely second-hand — we talk to the doers in order to tell you how the world works.

From time to time, we'd like to open up Bits as a forum to those doers to discuss their experiences and perspectives on technology directly.

To kick it off, Michael Zimbalist, vice-president for research and development operations at The New York Times Company, reflects on how he and his staff recognize new technologies that will have an effect on how people consume news.

The New York Times Company's research and development department tries to predict the kinds of products and services that will be used two or three years from now.

One way we do this is to look for what futurists call "weak signals" — those early signs of change, faintly visible today, whose presence may foretell bigger things to come.

While weak signals are never the headliners themselves, they may often be found embedded in larger stories, lurking near the edges, like ultraviolet radiation encroaching on the visible spectrum.

For example, one of the big stories at the Consumer Electronics Show this year was aptly captured in this headline from The Times: "A Deluge of Devices for Reading and Surfing." Within this roundup of latest e-readers and netbooks were three new products with features that could be portentous.

Two of these products — the Alex from Spring Design and the eDGe from Entourage — have dual screens, one for reading, the other for accessing the Web. The screens can be coupled to form a deep connection between the two experiences. You could, for example, watch a lecture about a literary classic on one of the screens while thumbing through the text on the other.

The third product that caught my eye was the Lenovo Ideapad U1 hybrid PC. This netbook has a detachable display that, when uncoupled from the keyboard, becomes a fully functioning tablet PC. But the orphaned keyboard is hardly brain dead; it contains its own powerful processor capable of driving another display.

All three of these devices are part of a larger trend that I refer to as hardware mashups.

Remember the first time you saw an iMac and wondered where they put the motherboard, only to learn with surprise and delight that it was in the monitor? That's the simplest example of this trend.

Another interesting mashup is the Eee Keyboard PC from Asus, which puts the entire computer and display into — you guessed it — the keyboard.

During the last year, manufacturers have increased the pace of innovation by recombining constituent parts of their devices in imaginative new ways. Consider the Hewlett-Packard Photosmart Premium with TouchSmart Web device.

It presents itself as a printer but it is actually a processor coupled to a printer, enabling wireless connectivity to a store on the Web where apps for printing can be downloaded, all without the intervention of a PC. It's a printer and computing device all in one.

(Source: The NYT)

## Shuttle blasts off for space station

**KENNEDY SPACE CENTER, Fla. (The NYT)** — The space shuttle Endeavour thundered into orbit before dawn Monday morning, briefly turning darkness into daylight.

It was the second effort to get the Endeavour off the ground, 24 hours after clouds over the launching pad scrubbed Sunday's attempt.

Clouds again encroached, but there were enough holes to allow the Endeavour to lift off on schedule at 04:14 A.M., a bright streak rising to the northeast along the East Coast. It was the 130th launching of a shuttle and probably the final night launching as the program winds down and ends after four more flights.

"What a beautiful launch we had this morning," William H. Gerstenmaier, NASA's associate administrator for space operations, said in a news conference.

The Endeavour is carrying the last major piece of the International Space Station. Two of the shuttle's crew members, Nicholas J. M. Patrick and Lt. Col. Robert L. Behnken of the Air Force, will conduct three spacewalks to install a 23-foot-long, 15-foot-wide Tranquility module.

The module includes a seven-windowed dome, or cupola, that will offer panoramic views of Earth and space. The viewing area, large enough for two astronauts, will be used to control the station's 60-foot-long robotic arm and to observe other activities outside the station.

The Endeavour is also delivering spare parts for the station's water system, which recycles urine and sweat into clean water.

A camera on the shuttle's external tank detected a strip of insulating foam falling off about two minutes into the flight. Mr. Gerstenmaier estimated it at a quarter-inch thick and a foot long.

"It didn't appear to impact the orbiter," Mr. Gerstenmaier said, "and we see no damage to the orbiter."

As with all shuttle missions since the loss of the Columbia in 2003, engineers will spend several days examining the foam loss to ensure there was no damage to the Endeavour's heat



shield.

The commander of the 13-day mission is Col. George D. Zamka of the Marines, and the pilot is Col. Terry W. Virts Jr. of the Air Force. The other crew members are Stephen K. Robinson and Capt. Kathryn P. Hire of the Navy Reserve.

While the Endeavour mission was off to a smooth start, Gen. Charles F. Bolden Jr., administrator of the National Aeronautics and Space Administration, admitted he had not done a good job of laying out a clear picture of the agency's future.

At a news conference on Saturday, General Bolden accepted blame for the rocky reception that greeted President Obama's plans to revamp NASA's human spaceflight program.

The plans, revealed in Mr. Obama's budget request for 2011, call for the cancellation of Constellation, the program that was to return astronauts to the Moon by 2020.

Under the new budget proposal, money that went to the Constellation would instead be used to develop new space technologies like those that would fuel spacecraft in orbit. The task of developing rockets for carrying astronauts to the International Space Station would be turned over to commercial companies.

General Bolden said some of the work in the Constellation program might yet be preserved. "I don't want to throw out the baby with the bath water, if you will," he said.

General Bolden also offered some conciliatory words as he acknowledged that the proposal for NASA would probably change as it wound through the budget process. "I do have to negotiate with my partners in Congress," he said.

The general said NASA would still work on a heavy-lift rocket even as the budget proposal sought to cancel the Ares V, the behemoth rocket that would have carried the cargo for a lunar mission.

General Bolden said, however, that he did not expect the heavy-lift rocket to be ready until after 2020.

## Microsoft launches 'child-friendly' Internet Explorer

Microsoft has launched a new version of Internet Explorer 8 that makes it easy for youngsters to report inappropriate online behavior and find information about staying safe online.

The web browser, an enhanced version of Internet Explorer 8, gives youngsters and families one-click access to reporting tools that allow them to flag inappropriate websites to the authorities, and seek help and advice on how to cope with cyber bullying or unwanted online attention.

Microsoft said it developed the Internet Explorer 8 Click Clever, Click Safe browser in association with Ceop, the Child Exploitation and Online Protection Centre. "It allows people to get information on a whole range of issues," said Matthew Bishop, a business and marketing officer at Microsoft. "It is a one-stop shop for a family's online safety needs, and parents do need that reassurance and support."

Almost two-thirds of under-18s in the UK have been contacted online by someone they don't know, according to the latest figures from Microsoft, with more than a third of those youngsters responding to the stranger.

The research also found that 41 percent of parents didn't know whether or not their child had adjusted or enabled the privacy settings on their social networking profile, while 58 percent of those youngsters questioned said their parents did nothing to control their access to the web.

"Internet safety advice needs to be at your fingertips, not hidden away," said Jim Gamble, chief executive of Ceop.



"Parents and children should not have to go searching through numerous web pages to find the help they need. This new tool will embed advice, help and report services directly in to the toolbar to provide a constant, reassuring presence for families, who will be one click away from the support they need."

The Ceop advice and reporting tools can be accessed directly through the Internet Explorer 8 browser using a Web Slice, a feature that allows users to permanently bookmark a website, and receive an automatic alert whenever that web page is updated or changed.

Users can download the Click Clever, Click Safe version of Internet Explorer 8, or install the Web Slice on their existing version of the browser.

Internet Explorer 8 accounts for more than 22 per cent of the global browser market, according to recent figures from NetApplications. Internet Explorer has been hit by a string of security scares in recent weeks, although Microsoft claims few of the vulnerabilities affect Internet Explorer 8, its newest and most sophisticated browser.

The launch of the Internet Explorer tool coincides with Safer Internet Day, and several other consumer electronics companies have unveiled initiatives to mark the event.

Computer retailer PC World has launched Surf Control Plus, parental control software that enables parents to limit the amount of time their children are able to spend on the web, and restrict the sites and content they can access online.

(Source: Daily Telegraph)

## LG, Samsung go social with latest handsets

South Korea's two biggest cell phone makers previewed on Tuesday handsets they plan to unveil at next week's Mobile World Congress exhibition in Barcelona.

Both phones feature full-screen touch panels on their face, Wi-Fi and close links with social networking services.

The Samsung Monte is an extension of the company's S-series of phones and includes applications for Facebook and MySpace, and widgets for access to Twitter, Bebo and several instant messaging networks.

The front of the phone is dominated by a 3-inch display with full-screen touchpanel through which all the main user interaction takes place.

A GPS receiver hooks into Google Latitude, which allows you to share your position with friends on a map, and provides location data that is embedded with photos taken with the phone's 3.2-megapixel camera. Two applications, Exchange ActiveSync and Google Sync, are included to synchronize e-mail, contacts and other data with a PC.

LG's new handset, the GD880 Mini, connects to Facebook and Twitter and a social network feed function combines updates from different services in a single stream.

In some areas the LG Mini outpaces the Samsung Monte: the screen is slightly bigger at 3.2 inches and the camera offers a higher resolution of 5 megapixels. Other features include high-speed HSDPA networking and A-GPS (assisted GPS).

LG said the Mini will be launched in Europe in March and later in other markets. Samsung didn't provide launch details for the Monte. Both companies are yet to announce prices for the new handsets.

(Source: PC World)

## Google making Gmail into a communications hub

Gmail users will soon have more ways to keep up with their friends via a widget that shows quick status updates like Facebook and Twitter do, The Wall Street Journal reports.

The move would further turn Gmail, which revolutionized online e-mail, into a comprehensive communications hub.

The intent is to keep people's attention centered on Google, by making Gmail, not Facebook, people's first stop online — and their default place to send and receive messages. Gmail users can already chat via Jabber or AIM, make video calls, and send SMS messages from Gmail's web interface.

Google has been trying to fashion Gmail into more than an e-mail service for years.

The service currently lets users set an "away message," which can be a link to a Web page, that their friends see when they instant-message them.

Now, it plans to launch a new interface that will aggregate updates from more friends in a stream.

The new stream will also eventually include content that a user's connections share through its YouTube video site and Picasa photo service, according to one person familiar with the matter. But whether those features will also be announced in the coming days remains unclear.

The full extent of the new features remain unclear, but Google is inviting reporters to a launch event Tuesday on its Mountain View, California, campus promising "some innovations in two of our most popular products," according to an e-mail sent to reporters.

Yahoo has included similar features in its e-mail service, letting users see what photos their contacts have uploaded to Flickr, for example.

(Source: Wired News)