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There but for the grace of God

Ian Sample sheds light on the Large Hadron Collider and its famous quarry, the Higgs boson

BY GRAHAM FARMELO
THE GUARDIAN, LONDON

Never has so much been expected of a scientific machine. The Large Hadron Collider, 30 years in the planning, promises to shed new light on nature's fundamental laws and particles, thus justifying its multi-billion-US dollar price tag to the governments that have footed the bill. "If the Collider doesn't deliver some really sexy discoveries," one of the world's most illustrious experimenters recently whispered to me, "particle physicists will be fucked."

He may be right. Physicists can never know in advance what they will find, and so have to guess, using theories they hope will be found wanting. In making bids for government funding, scientists have to appeal to politicians' sense of curiosity and their sense of intellectual adventure. If all else fails, they can point to past successes of curiosity-driven research, such as quantum mechanics, which provides the theoretical underpinning of microelectronics.

One of the aims of the LHC is to discover and study the particle named after the theoretical physicist Peter Higgs of the University of Edinburgh. Almost 50 years ago he studied a deceptively simple question: why do most of the most basic particles in nature have mass? Why aren't they all like particles of light, with no mass at all? Higgs and others speculated that most fundamental particles acquire part of their mass by interacting with a hitherto undetected field, as invisible as gravity and stretching across the entire universe. This mysterious field should manifest itself through the existence of a particle, but it has yet to be observed. Theoreticians predict it should be very heavy (by subatomic standards) and have only the briefest of lives: after each one is born, death should follow almost immediately, about a hundred trillionths of a trillionth of a second later when it decays into less interesting progeny.

Higgs himself has proved almost as elusive as his eponymous particle. Until now, Ian Sample, a science writer on the *Guardian*, persevered long enough to secure an interview with him, and the results are among the highlights of *Massive*, a lively account of the genesis of both the LHC and its most famous particulate quarry.

Higgs turns out to be an excellent interviewee. He gives a vivid account of the idea's inception. As with all really new ideas, it was firmly resisted by orthodoxy's ever-present army of defenders. Higgs says he was "gripped by a surge of panic" when driving to Princeton in the spring of 1966 to present his theory to the Institute for Advanced Study. Higgs had good reason to be afraid. At Harvard, the



tough-talking theoretician Sidney Coleman was planning to have some fun, later confessing that he told his students: "You're going to tear him to shreds!"

By the late 1970s, the Higgs theory was in the textbooks, even though it had not been directly supported by experiment. Higgs, a humble and likeable man, was something of a living legend among his colleagues; though, as he admits here, he was struggling to produce new ideas and to keep up with the next generation. No matter, he had done what eludes the great majority of scientists: conceived a really new idea and changed the way physicists think about the universe.

Sample has interviewed quite a few other leading scientists, too, and proves adept at prizing insights from them. The book's focus sometimes wanders, but we are kept hooked by its fine reportage, which makes clear the sheer achievement of the scientists and engineers who have built the LHC, the most complex machine ever made in the service of pure science. We learn, too, of the many theoretical concepts that will be probed by it. Quite apart from the Higgs particle, there are high hopes that the collider will demonstrate the existence of a special kind of symmetry, known as supersymmetry, in nature's fabric; this notion, too, has been around for years, but has yet to be confirmed or refuted experimentally. It is also just possible that the machine will give us first evidence for higher dimensions.

But what if the collider finds no Higgs particles? That would set the theoreticians a wonderfully exciting puzzle — but give the leaders of the physics community a lot of explaining to do. Either way, as Sample says, the story will be massive.

BY DAVID CHEN
STAFF REPORTER

If you make a lot of long distance calls and have an Internet connection at home, there's little reason not to use Skype, the Web-based phone service.

But taking advantage of those free, or at least cheaper, calls can be a hassle. Some can't be bothered to sit at the computer and wear one of those clunky headsets with the microphone attached, while others aren't tech-savvy enough to handle the occasional quirks of PC software.

My parents, who live abroad, stopped using Skype when the sound in their laptop mysteriously ceased working. The problem was simple to fix, in theory: Just open up the Skype software, go to Tools, Options, Audio Settings and make sure you're using the correct the speaker and microphone inputs.

But explaining how to do this, over a long distance international phone call, proved to be a challenge. The problem was eventually solved, but Mom and Dad remained wary of making phone calls on their PC: It seemed complicated and troublesome. It would probably break down again. And it did.

Thankfully, electronics companies are recognizing that there's a market for Skype devices that take the PC out of the equation, or at least make Web-based phone calls almost as simple as a normal telephone call.

The *Taipei Times* looks at just a few of the many options available for Skype phones. Decent sound quality is a given with these models, but what sets them apart are setup, design and ease-of-use.

NO FUSS, JUST PLUG IT IN

The runaway, plug-it-in-and-forget-it solution for making Web-based phone calls is something akin to the *Belkin Desktop Internet Phone for Skype*, which retails for around NT\$3,000. It looks and feels like a regular home or office phone (although it's made of a cheaper plastic) and pretty much works like one.

The best part of this type of device: You're always available on Skype, and you don't need a PC. Like your computer, the Belkin phone plugs directly into an ethernet outlet to connect to the Internet. Just sign into Skype and your contacts can reach you online, 24/7.

This phone is basically a mini-computer equipped with software created and licensed by Skype. You can view your contacts and settings on a 1.8-inch color screen, and it's easy to tell which of your Skype contacts are online. Sifting through contacts and changing settings will be intuitive to anyone who has used a mobile phone — the interface and layout reminds me of a basic Nokia phone.

And, of course, there's the standard numeric keypad that you can use to either type in the name of your contact, or dial a number if you're making a Skype-out call (a fee service where you can call regular phones at discounted rates). There's also a speakerphone function for conference calls.

On the handset, the sound quality is on par with regular landline and mobile phones. You're bound to run into the occasional hiccup or weird echo that comes with Internet voice calls, but for the most part, you can't tell the difference from a regular telephone.

The Belkin can be hard to find in Taiwan, although it sometimes pops up on up on PCHome's online store (shopping.pchome.com.tw).

But there's an equally good, and cheaper, option. Taiwanese electronics company *Teco's* (東元) *SP2014 Desktop Phone for Skype* retails for NT\$2,380 and is identical to the Belkin, save for a few cosmetic changes with the buttons and color (Teco is indeed a contract manufacturer for Belkin). It also comes equipped with Skype's certified software.

The Teco Skype phone is easy to find through Taiwanese online retailers and can also be purchased at Taipei's Guanghai Market (光華商場) — several shops there say it's one of their better-selling Skype phones. If you're looking for something for a technophobe family member or friend, or you want to use Skype with out fussing with a computer, this is the model to get.

(Alas, there is an exception to the "plug and go" functionality of these phones. Most Taiwanese users will have to take an extra step that neither of these companies mentions in their instruction manuals. The fault rests with the country's Internet providers, including Chunghwa Telecom, whose subscribers have to provide their "PPPoE" data, which is basically an assigned username and password. On both of these models, you enter the information by going to Menu/Settings/Network/PPPoE. Once this is done, things should work smoothly from there.)



Teco's SP2014 Desktop Phone for Skype eliminates the need for a PC to make Skype calls.

PHOTO COURTESY OF TECO



The Ipevo S0-20 Wi-Fi Phone for Skype makes Internet phone calls as easy as using a mobile device.

PHOTO COURTESY OF IPEVO

WIRELESS SKYPE-ING

Those who have wireless Internet at home or are always near a Wi-Fi spot may fancy the *Ipevo S0-20 Wi-Fi Phone for Skype* (NT\$3,190). Ipevo, a Taiwanese company that specializes in computer accessories, has a flair for stylish, user-friendly designs. The S0-20 takes the exact shape of a generic candybar-sized mobile phone, with an identical keypad layout, and sports a dark gray and black matte plastic casing. It also uses the same Skype-certified software as the Belkin and Teco models.

The Ipevo works like a charm — just select the wireless network, enter the password if there is one and then sign in to your Skype account. It feels just like using a basic, reliable mobile phone. Except for one thing: The battery life is not so great. I managed not even three hours of talk time before getting a low power warning. Nonetheless it's easily rechargeable through any USB port, and is still a good model for business travelers to consider. The phone is available at Ipevo's online store, www.ipevo.com.tw.

On the other end of the price and quality spectrum is the *Lobos LB-SP601*, a mixed bag of a wireless Skype phone. The main attraction of this device is the price — it costs around NT\$1,700 through online retailers and can be found at many electronics retailers.

The Lobos does the job — that is, if you can get it to work. It has to be connected to your PC with Skype running, and I had mixed luck using it on different Windows computers. Mac users shouldn't even bother.

Part of the problem is the way this phone is wired. The Lobos is a wireless handset, but it has a base station and charger that has to be attached to your computer via a USB port. The handset doesn't use Skype-certified software. It comes with Lobos' own rudimentary program, SkyMe, which you must install on your computer and run in tandem with Skype.

The Lobos software worked fine when I tested it on a laptop with Windows 7, but it wreaked havoc on another computer that ran Windows XP. After I installed it, not only the voice calls, but all of the sounds from the computer — including music and videos — were being channeled through the phone. In short, the Lobos may require some tinkering with your PC before everything works properly.



Ipevo's FR-33.2 Skype USB Handset comes with a nifty voice recording app.

PHOTO COURTESY OF IPEVO

SOMETHING IN BETWEEN

If you don't mind being tethered to a computer to use Skype but still want to feel like you're talking on a normal phone, then try another Ipevo product, the *FR-33.2 Skype USB Handset* (NT\$999, available at Ipevo's online store). You have to install the included software and drivers (for both Mac and PC), but this handset, which connects to a USB port, works well and the call quality is very good.

The FR-33.2, which sports a sleek, futuristic design, comes with an obscure bonus, but one that journalists, bloggers and anyone who conducts telephone interviews will appreciate: FreeRec, a software that allows you to record your Skype conversations or voice memos. The handset even has a dedicated record button that activates the software instantly. FreeRec worked nicely for me, but a word of advice for Windows users: Download the software from Ipevo's Web site instead of using the program on the accompanying CD-ROM, which is outdated and doesn't work properly. On a Mac, FreeRec worked without a hitch right from the start.

For now, my parents, who just got the Belkin desktop model, are always online, just a Skype call away.

Hardcover: South Korea

When the gulag meets capitalism with Chinese characteristics

'Laogai' provides a disturbing account of China's sprawling network of profit-oriented prison-labor camps and the misery it metes out to millions

BY J. MICHAEL COLE
STAFF REPORTER

In the Kafkaesque world of Chinese political repression, two words stand out as epitomizing continuity and adaptation in the Chinese Communist Party's (CCP) reliance on incarceration to ensure its survival: *lao* (勞, labor) and *gai* (改, reform). Drawing from the Maoist philosophy that work for the betterment of the nation will purify one's thoughts, the *laogai*, or "reform through labor," is a system by which "antisocial" elements are removed from society and "reformed." Not only are convicts and dissidents detained and "reformed," but as *Laogai: The Machinery of Repression in China* shows, the state profits handsomely from the unpaid labor that takes places in those camps.

That system is not only rampant across China, with 909 *laogai* camps verified by the Laogai Research Foundation, but it is marked with innumerable abuses, including inadequate food and medical care, crowded, unsanitary and oftentimes dangerous work environments and disciplinary cruelty that, in many cases, has left permanent psychological scars on

an inmate or resulted in his death.

According to research conducted by the authors, as many as 3 million to 5 million people are currently imprisoned in *laogai* camps, and between 40 million and 50 million have passed through them since 1949, when the People's Republic of China (PRC) was born. Other statistics paint a disconcerting picture: Ninety-nine percent of people charged with "endangering state security" in China are found guilty and will likely end up in the *laogai* system; 500,000 people are believed to be in arbitrary detention across China at any given time; 40 percent of *laogai* prisoners are sentenced to more than five years of imprisonment, life imprisonment or death.

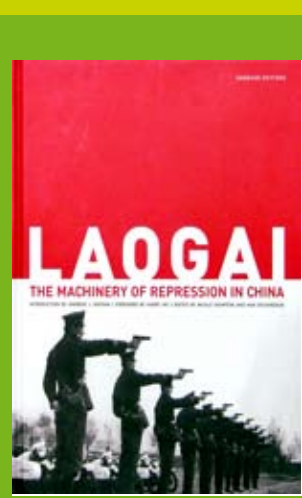
During the Mao era, convicts — from criminals to political dissidents — swallowed by the *laogai* system provided unpaid labor for massive infrastructure projects that the PRC simply could not have afforded had it paid for their work. As early as 1954, the Chinese government was stating that "Laogai production must serve the economic construction of the state and be a part of the general plan of production and

construction of the state."

Eventually, as China opened its doors to international trade under Deng Xiaoping's (鄧小平) guidance, the *laogai* camp turned into a profitable instrument by which local officials could enrich themselves, by using unpaid labor in the budding factory sector. Throughout the 1990s, *laogai* enterprises were directly managed by prison officials and expected to meet all the costs of running the camp with the profits from the enterprises. The idea, the authors tell us, was to encourage *laogai* officials to operate at a profit.

Lax international regulations and weak enforcement of rules, as well as the use of the import-export company system to mask the origin of *laogai* products, allowed the CCP to get away with "reform through work" for decades. As the book informs us, as many as 314 businesses listed in Dun and Bradstreet databases are clearly linked to *laogai* camps, which were often situated right next to a factory or use factories as a front (this has now changed somewhat, in that rather than being directly managed by prison officials, *laogai*

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LAOGAI: THE MACHINERY OF REPRESSION IN CHINA

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enterprises are now physically separated from prisons but are bound by contract). *Laogai* products documented in the book that have entered our markets include a variety of teas, rubber boots, wrenches, socks, artificial flowers and even sulfuric acid. The more consumers all over the world consume *laogai* products, the more the Chinese government will continue to profit from the imprisonment and exploitation of prisoners, the book argues. In fact, a case could be made that this could encourage the state to continue imprisoning a large number of Chinese for even minor violations, or for various forms of what the CCP regards as dissent.

Amid the bad publicity engendered by the *laogai*, Chinese authorities switched from the designation *laogai* to *jianyu* (監獄), or prison. But as the book tells us, the new name was not accompanied by a change in policy and served more as a political smokescreen. As the government-sanctioned *Beijing Legal Daily* wrote in 1995: "Our renaming of the *laogai* is what our associating with the international community calls for, and it is

favorable in our international human rights struggle.

"Henceforth, the word *laogai* will no longer exist, but the function, character and tasks of our prison administration will remain unchanged."

They also argue that as prisoners in *laojiao* (勞教, re-education through labor) camps are under "administrative detention" and therefore not considered convicted criminals under Chinese law, goods produced by inmates do not constitute prison labor goods for the purpose of bilateral agreements reached between China and a number of countries.

Sadly, the book's title is somewhat misleading, as rather than simply focus on the *laogai* system, it also contains chapters on the history of human rights (or lack thereof) in China, black prisons, executions, organ harvesting and control of the media. It also adopts what is slowly — and necessarily — becoming the accepted notion: while the PRC has liberalized economically, the CCP has absolutely no intention of relinquishing its grip on power

and will continue to use the penal system — including *laogai* — to ensure its survival. Consequently, all the state-sponsored crimes this book covers are likely to continue, no matter how much Beijing is integrated into the international community and engages in discussions on human rights with the US.

It should be noted that this book comes in a coffee-table format with dozens of excellent, and sometimes very graphic, pictures (many of which were taken surreptitiously by Harry Wu (吳宏達), one of the authors and himself a former *laogai* prisoner), which, along with biographies of a number of individuals who went through the prison system, adds a personal touch to the text.

This indispensable book is an unforgiving indictment of the many crimes perpetrated by the CCP in the name of development and stability. While today's China is a better place in some ways than it was during the Cultural Revolution, the indiscriminate and exploitation that marked Mao's folly are still very much alive today. A Chinese-language version of this book is also available.