DEFYING GRAVITY

AS THE AEROSPACE GIANT BOEING REVEALS ITS INVESTIGATION OF AN ANTIGRAVITY EFFECT, DISCOVERED BY THE RUSSIAN PHYSICIST DR YEVGENY PODKLETNOV, WE ASKED OUR OWN BOFFIN **ROBERT CHAMBERS** FOR AN OVERVIEW OF THE RACE TO PERFECT A REACTIONLESS LIFTING DEVICE. MAIN ILLO BY **ALEX TOMLINSON.**

Gravity, the invisible force that binds us to large concentrations of mass (for instance, the earth beneath us), affects us all – indeed, the universe could not function without it – yet humans have always longed to break free of it, to soar and fly effortlessly through the air and into space. Now, the idea of antigravity seems on the verge of escaping from dream, myth and science-fiction as big business and military researchers investigate the work of the Russian physicist Dr Yevgeny Podkletnov who, for the last decade, has been studying the mysterious weight loss of particles above a superconducting magnet.

The current excitement of Boeing and the UK's BAE Systems centres on the fact that a reduction in the weight of an aircraft and the amount of fuel it has to carry will bring huge improvements in speed and big savings in cost.

A successful device would revolutionise every aspect of daily life

A successful device would, in effect, revolutionise every transport, manufacturing and construction process, affecting every aspect of daily life: the stakes, therefore, are very high.

To the layman the subject of antigravity research is difficult terrain; nothing about it is straightforward as different groups are pursuing different effects, each with their own theories and jargon. This is not Mickey Mouse science; George Muellner, head of the top-secret Phantom Works in Seattle, told *Jane's Defence Weekly* (http://jdw.janes.com) that the science behind Boeing's project "appeared to be valid and plausible". All are agreed, however, that a true breakthrough will need a new understanding of physics or exploit loopholes in the existing science. Many people, both amateur and professional, have taken up the challenge, producing plenty of theories but, as yet, few practical devices.

Some, like Hal Puthoff (see ***FT145:24***) speculate that the so-called 'zero-point field' of energy – permeating all space and the modern equivalent of the *æther* [1] – is the source of inertia and could therefore be manipulated in some way, perhaps using some kind of 'æther propeller'. Others think that the unification of gravity with the more powerful electromagnetic force will enable us to control gravity; this is what some think might be occurring within Dr Podkletnov's devices.

Boeing's sudden interest in antigravity – or what Podkletnov prefers to call "gravity modification" – has intrigued the media.[2] It started with a presentation at Seattle's top-secret Phantom Works entitled *Gravity Reduction for Advanced Space Propulsion* (GRASP), detailing the current state of interest and suggesting that the company actively investigate Podkletnov's work rather than simply monitoring it. (GRASP, they say, is not a project but the title of the presentation.)

As for Podkletnov, having achieved up to five per cent gravity reduction (see ***FT93:14, 96:26–29, 135:66***), he has moved on to what he terms the 'Impulse Gravity Generator', [3] which generates a ray affecting matter over long distances. When this news was published last year, some old hands remarked that his device bore some similarities to one proposed by Charles Morton in 1966 [4]. Speculation is rife that Boeing's real interest is in its potential for missile defence or disruption of satellite orbits. As Podkletnov has made clear that he will only support peaceful applications, a collaboration with Boeing seems unlikely.

Boeing's new interest in antigravity has intrigued the media

Boeing's other interests in this area include the Cook Inertial Propulsion device, [5] which it tested, apparently successfully, in 1999. Similar ideas based on gyroscopes were proposed by the maverick British engineer Eric Laithwaite,[6] most famously during the Royal Institution Christmas Lectures in 1974 (see ***FT8:18-20***). Boeing has also explored plasma thrust as a means of improving jet engine efficiency, allegedly gaining eight times the thrust of an ordinary jet engine. Boeing scientist Frederick Alzofon's 1981 paper proposed reducing gravitational pull with microwave radiation. [7]

NASA's Breakthrough Propulsion Physics (BPP) project is perhaps the best-known in the field.[8] Since 1996, it has encouraged academics and private companies to test theories and perform basic experiments. Unfortunately, recent severe budget cuts have hit many advanced propulsion activities within NASA, including the main Advanced Space Transportation Program based at the Marshall Space Flight Center (MSFC). [9] It is there that replications of the original Podkletnov experiment – and similar efforts involving the work of Dr Ning Li [10] – have been attempted, so far unsuccessfully. For the foreseeable future, new funding is unlikely and some administration is being transferred to the non-profit Ohio Aerospace Institute. [11] This leaves the BPP as more of an umbrella organisation than an active player.

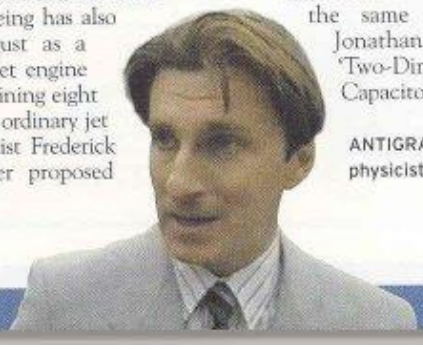
The Internet millionaire Joe Firmage has founded and supported several organisations over the past few years, seeking new methods for space travel. Since the dot-com collapse, money has been tight, with the most recent incarnation, Motion Sciences, soliciting subscriptions. [12] Little progress has been apparent from Joe's efforts in this field.

Lockheed Martin's Skunk Works is famous for innovation, but it is difficult to get through the myths to what is really going on there. Shortly before his death, Ben Rich, its former head, hinted that: "There are certain things – some of them 20 or 30 years old – that are still breakthroughs and appropriate to keep quiet about."

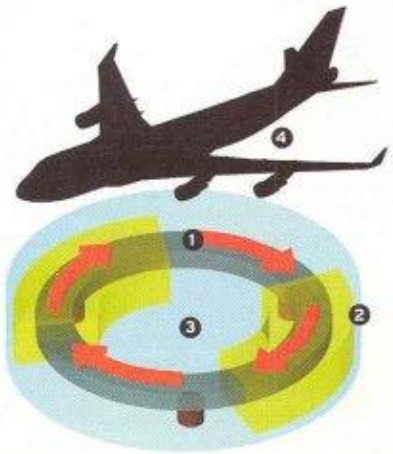
Rumours persist that the Northrop Grumman B-2 bomber makes use of electrokinetic propulsion and aspects of its design lend themselves to that conclusion.[13] It is also suggestive of the use of electroaerodynamics; Northrop engineers, as long ago as the late 1960s, were experimenting with electrically-charged wings to improve performance. [14]

BAE Systems – formerly British Aerospace – has funded small projects through Project Greenglow, mainly at UK universities. [15] The best known of these are the partial replication of the original Podkletnov experiment at Sheffield University and theoretical research into the relationship between electricity, magnetism and gravity at Lancaster University. [16]

The last year has seen a revival of interest in the so-called Biefeld-Brown effect. [17] Transdimensional Technologies, [18] a company located near NASA-MSFC, posted details on their website of a triangular arrangement of wood, wires and foil called a 'Lifter' which, when charged to high voltage, could fly – even, it is said, in a vacuum. This looked very similar to the work Thomas Townsend Brown began in the 1920s based on the alleged ability of charged capacitors to 'thrust' under certain conditions. Interestingly, at around the same time, MSFC scientist Jonathan Campbell patented a 'Two-Dimensional Asymmetrical Capacitor' [19] which looked similar



ANTIGRAVITY GURU: Russian physicist Dr Yevgeny Podkletnov



❶ SOLENOIDS CREATE MAGNETIC FIELD ❷ SPINNING SUPERCONDUCTING CERAMIC RING ❸ LIQUID NITROGEN ACTS AS A COOLANT ❹ DR. PODKLETNOV CLAIMS WEIGHT CAN BE REDUCED BY 2% . SHEDDING 2% OF THE WEIGHT OF A 747 396,900 KG (870,000 POUNDS) WOULD BE EQUIVALENT TO LOSING 7938 KG (17400 LBS)

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GETTING THINGS OFF THE GROUND: The Lifter, while not a 'true' antigravity device, produces directional thrust using an electromagnetic propulsion system that has no moving parts.

to the device patented by Brown some 50 years earlier. Transdimensional was contracted by MSFC to build a working example and is now seeking licensing contracts. [20]

The easily-constructed Lifter proved popular with enthusiasts the world over, thanks to instructions provided by the amateur experimenter Jean-Louis Naudin. [21] Questions remain over the efficiency of 'lifters' and whether the thrust is due to anything other than ionization, as in the Seversky Ionocraft of the 1960s. [22]

To further complicate the issue, Hector Serrano, working with scientists at Purdue University, renamed the effect in his own honour to avoid confusion (!). His company, Gravitec, has calculated that ion wind alone is not sufficient to account for the observed thrust. [23] To resolve the issue, MSFC commissioned a report from the West Virginia-based Institute for Software Research, itself proposing a reactionless propulsion mechanism. [24] Being a government study, it's unlikely to satisfy true believers.

Meanwhile, Podkletnov himself continues to work in Finland and as consultant to other groups, particularly at the Moscow Chemical Scientific Research Centre (where the 'ray gun' was developed). A *Sunday Times* team, attempting to ring him at home, were rebuffed by a woman's voice saying brusquely: "He will not talk to anyone about anything." What is he hiding from, they wondered?" [25]

RECOMMENDED SURFING

www.jinlabs.org DIY heaven -

www.americanantigravity.com
A good summary of most of the current devices

www.grc.nasa.gov/WWW/bpp/ NASA BPP site

AUTHOR BIOGRAPHY

ROBERT CHAMBERS is a physicist masquerading as an aerospace systems engineer. The most surreal event of his life so far was eating Big Macs with Dr Podkletnov on Blackpool seafront.

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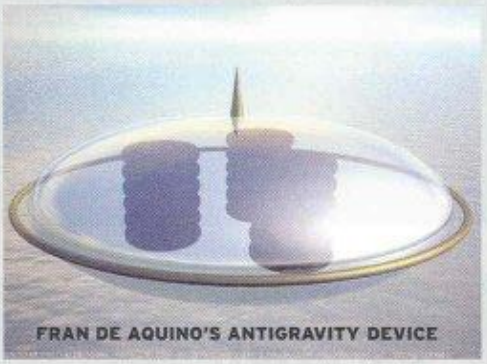
ANTIGRAVITY AND THE INTERNET



FRAN DE AQUINO'S ANTIGRAVITY DEVICE

The role of the Internet in rapidly communicating new developments has been significant. Many inventors fear the power of the state to silence them, so they disclose their work publicly rather than patent, accepting the possibility of financial loss. Online enthusiasts have been following the fortunes of five in particular...

The Brazilian physicist FRAN DE AQUINO [25] announced in January 2000 that he had reduced gravitational mass using electromagnetic energy. The experiment has proved to be too expensive for amateurs and has not been replicated in the open. He has since attracted interest from the Brazilian air force and has devised another experiment that may be easier to replicate.

JOHN SEARL has been promoting his disc [27] for many years without great success. Russians Godin and Roschin claimed to have built a working device along similar lines [28], but as with Searl, hard evidence is lacking. Mark Tomion is also working on a flying disc [29].

UNITEL [30] has proposed a system which permits quantum tunnelling of large objects. The science behind it is rather complex and therefore difficult to assess.

Canadian JOHN HUTCHISON [31] has demonstrated an effect by which electromagnetic radiation affects non-magnetic objects. It has proved difficult to reliably reproduce, which has not benefited his credibility.

In 1994, MIGUEL ALCUBIERRE proposed a potential warp drive mechanism [32]. Unfortunately this required more matter than was present in the Universe. Chris van den Broeck of recently-defunct Starlab has since reduced that requirement to two solar masses of exotic matter, [33] still a tall order!

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