

Editor:

David Baker, PhD, BSc, FBIS, FRHS

Sub-editor:

Ann Page

Production Assistant:

Ben Jones

Spaceflight Promotion:

Gillian Norman

Spaceflight

Arthur C. Clarke House,  
27/29 South Lambeth Road,  
London, SW8 1SZ, England.

Tel: +44 (0)20 7735 3160

Fax: +44 (0)20 7582 7167

Email: spaceflight@bis-space.com

www.bis-space.com

**ADVERTISING**

Tel: +44 (0)1424 883401

Email: d.baker146@btinternet.com

**DISTRIBUTION**

*Spaceflight* may be received worldwide by mail through membership of the British Interplanetary Society. Details including Library subscriptions are available from the above address.

\* \* \*

*Spaceflight* is obtainable from UK newsagents and other retail outlets in many countries. In the event of difficulty contact: Warners Group Distribution, The Maltings, Manor Lane, Bourne, Lincolnshire PE10 9PH, England.

Tel: +44 (0)1778 391 000

Fax: +44 (0)1778 393 668

\* \* \*

*Spaceflight* is a publication which promotes the mission of The British Interplanetary Society. Opinions in signed articles are those of the contributors and do not necessarily reflect the views of the Editor or the Council of the British Interplanetary Society.

\* \* \*

Back issues of *Spaceflight* are available from the Society. For details of issues and prices go to [www.bis-space.com](http://www.bis-space.com) or send an sae to the address at top.

\* \* \*

Published monthly by the British Interplanetary Society. Registered Company No: 402498. Registered Charity No: 250556. Printed in the UK by Latimer Trend & Company Ltd.

\* \* \*

Copyright © British Interplanetary Society 2017 ISSN 0038-6340. All rights reserved. No part of this magazine may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying or recording by any information storage or retrieval system without written permission from the Publishers. Photocopying permitted by license only.

\* \* \*

The British Interplanetary Society is a company limited by guarantee.

**Mission**

The British Interplanetary Society promotes the exploration and use of space for the benefit of humanity, by connecting people to create, educate and inspire, and advance knowledge in all aspects of astronautics.

Published by the British Interplanetary Society

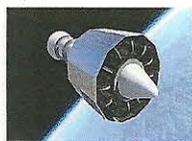
Volume 59 No. 8 August 2017

**292-293 The Global Space Industry**

In response to questions about the cost of space programmes and the benefits that accrue, *Spaceflight* introduces a new periodic feature called FACTCHECKER, which will address a specific issue in contention and attempt to find out the truth behind the headlines.

**294-295 China's First Space Station Plans**

Renowned analyst of Russian and Chinese space missions, trajectories and projections, Philip Clark examines the build-up to China's first major space station complex and explains the various elements which will go into its assembly.

**299 Women first?**

Recent studies of physiological reactions to long duration space flight reveals that women are better equipped to survive the trip than men. Why is this so and what are the implications for protection from prohibitively high levels of radiation?

**300-302 Stations in LEO – and beyond**

In the second part of a two-part examination of future plans for human space flight goals in the next decade or so, we examine the options for maintaining stations in Earth orbit and for placing new facilities around the Moon.

**303-304 Genetic gifts and a Mars mission**

William Rowe MD looks at challenges faced by humans on flights to Mars and asks whether we have learned anything at all from the Moon missions of the Apollo era.

**305-307 Talking to Icarus**

Peter Milne takes time from his work on the Icarus interstellar study to report on challenges to communicating with space probes at our nearest stellar neighbours.

**Regular Features****284-286 News Analysis** – More Phantom than Express? – The Future's Bright**286 A Letter from the Editor****287 Briefing notes** – news shorts from around the world**288-290 ISS Report** – 9 May - 8 June 2017**308 Flashback** – A regular feature looking back 50 years ago this month**309-311 Satellite Digest** – 534 May 2017**313 Shelf** – Space Shuttle 1972-2013**314-317 Society News** – Sir Arthur Clarke Awards – Sino-Russian Technical Forum – IAC Student Paper Competition**318 What's On**

**Cover image:** An artist's depiction of the Boeing Phantom Express, a rapid-response solution to replacing medium class satellites in Earth orbit with a reusable first stage (see pages 284-285). Boeing