



ROYAL AERONAUTICAL SOCIETY

Loughborough Branch

Annual Report for the Branch's 2019/20 Season

1 Introduction

This report has been prepared in the midst of the unprecedented circumstances arising from the 2020 worldwide Covid 19 pandemic which has resulted in the postponement or cancellation of most activities in the UK involving any form of group meeting. Such cancellations include the RAeS Loughborough Branch's AGM scheduled for 5th May 2020.

Together with an accompanying Treasurer's Report, this report is intended to replace the AGM report normally produced immediately following the AGM. It was not considered feasible to hold an AGM given the movement constraints in force at the time proposed for the AGM. Both reports are being placed on the RAeS Loughborough Branch's website (www.loughbrough-raes.org.uk) and all persons on our Branch e-mailing list advised accordingly. It is being taken that, unless any objections are brought to our attention, both reports have been accepted by all RAeS Loughborough Branch Members.

2 Matters Arising from AGM held of 7th May 2019

Refer to Ref. 1. There are no matters arising from the AGM held on 7th May 2019.

3 Report on the Branch's 2019/20 Season

A total of ten meetings were arranged for the 2019/20 Season, all at Loughborough University. The meetings are listed in Tables 1 and 2. Of these, seven meetings took place whilst the remaining three were cancelled for the reasons given in Section 1 above.

Full reports on all of the seven meetings which took place are available on the Branch's website. Brief summaries of each of these lectures are also included in Tables 1 and 2. The tables show that, once again, the Loughborough Branch has held an excellent season of lectures covering all aspects of aerospace – historical, present day and the future; reminiscences and modern technology.

The average attendance was **136** but, unlike previous seasons, this excludes the evening of lectures by Loughborough University's Aeronautical and Automotive Engineering (AeAE) Department's final year MEng students where the attendance is usually approximately 300. This year's average attendance compares with **148** in 2018/19, **138** in 2017/18, **132** in 2016/17 and **150** in 2015/16. Overall it is concluded that the attendance for the 2019/20 season is broadly in line with previous seasons.

Of the seven lectures which actually took place, there were 4 lectures with other organisations. These organisations were the Loughborough University Students' Union Velocity Society (2 lectures), the Institute of Mechanical Engineering (1 lecture) and the Institute of Mechanical Engineering Young Persons (1 lecture).

No Branch visits took place during the 2019/20 season.

Once again the Branch committee members are to be thanked for the relatively seamless manner in which the season has progressed. Without their work it would have been impossible to run the programme.

4 Proposals for 2020/21 Season

The RAeS Loughborough Branch is now well into the process of planning its 2020/21 season of lectures. Table 3 lists the proposed lectures.

Throughout the planning process the aim has been to maintain the same wide cross-section of lectures as in previous years and thereby to maximise the attractiveness of the programme to all our attendees.

Table 3 concludes with a list of possible Branch Visits which are currently being investigated.

5 2019/20 and 2020/20 Seasons' Committees

The following committee members were elected at the AGM held on 7th May 2019:

Chairman:	Prof. Jim McGuirk*
Secretary:	Colin Moss*
Assistant Secretary	Dr. John Ollerhead*
Treasurer:	Stephen Hogarth*,
Meetings Secretary:	Dr. Vipran Kannan*
Visits Secretary	John Newton*
Committee Members:	Ivor Amos, Gerry Elloy*, Mike Hirst, Tony Irwin*, Mac Maccabee, Peter Nathanail, Daniel Nutt, John Robertson*, Paul Snelling*, Dr. Adrian Spencer*, Goff Tearle*

*RAeS members.

2019/20 Season's Committee

Ivor Amos and Peter Nathanail (Loughborough Students' Union Velocity Society representative) resigned during the 2019/20 season. Ed Cubitt was co-opted to replace Peter Nathanail and in the same role. All of the remaining committee members, including Ed Cubitt, have indicated that they are willing to continue in office for the 2020/21 season. The 2020/21 season's committee will therefore be:

Chairman:	Prof. Jim McGuirk*
Secretary:	Colin Moss*
Assistant Secretary	Dr. John Ollerhead*
Treasurer:	Stephen Hogarth*,
Meetings Secretary:	Dr. Vipran Kannan*
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Committee Members:	Ed Cubitt, Gerry Elloy*, Mike Hirst, Tony Irwin*, Mac Maccabee, Daniel Nutt, John Robertson*, Paul Snelling*, Dr. Adrian Spencer*, Goff Tearle*

*RAeS members.

2020/21 Season's Committee

6 Implementation of Changes as a result of the General Data Protection Regulations (GDPRs)

The GDPRs came into force during the 2018/9 season. As a consequence of the GDPRs, the RAeS decided that all data such as names, postal addresses, telephone numbers and e-mail addresses of all RAeS contacts should henceforth be stored on a single master database held and managed by RAeS HQ. This in turn meant that all bulk e-mail communications from the RAeS Loughborough Branch were to be sent out by RAeS HQ via a data package called *Dotdigital*.

The source of the data used to create and maintain the *Dotdigital* database was to be RAeS HQ in the case of RAeS Members and the individual Branches in the case of individuals who are not RAeS Members. In the case of the latter, the RAeS Loughborough Branch has found continued differences between the data which it has supplied to RAeS HQ and the Loughborough Branch subset of the master *Dotdigital* database as maintained by RAeS HQ. This is an ongoing issue which has, at times, resulted in bulk e-mails not reaching all of the Loughborough Branch's Branch Members.

Colin Moss MRAeS, Branch Secretary
RAES1062 Iss.3 21/04/2020

References

1. RAES1037 RAeS Loughborough Branch AGM Minutes Iss. 4 21_04_2019

Date	No. of Attendees	Lecture
15 th Oct 2019	150	<p>Beluga XL – oversize transport for the 21st century by Veronique Roca, Airbus Airbus BelugaXL Technical Director & Chief Engineer</p> <p>Synopsis:</p> <p>The Airbus Beluga plays a key role in keeping Airbus production and assembly network operating at full capacity. It featuring one of the most voluminous cargo holds of any civil or military aircraft flying today, Veronique Roca, Chief Engineer of the BelugaXL described the BelugaXL programme since its launch in Nov 2014 and its first flight in July 2018. At the time of the lecture the aircraft was on its way to certification later in Q3 2019.</p>
5 th Nov 2019	180	<p>Battle of the X-planes – The Competition for the Joint Strike Fighter Programme by Rear Admiral Simon Henley, RAeS President</p> <p>Synopsis:</p> <p>Rear Admiral Simon Henley was the UK lead in the Joint Programme Office in Washington DC for the Joint Strike Fighter programme from 1999-2001 when the programme was in its Concept Development and Demonstration Phase. He explained how the programme was conceived, and described the two widely different concept aircraft. This included rare video footage of the demonstrator aircraft during flight testing.</p> <p><i>Joint lecture with IMechE</i> <i>Elfyn Richards Prestige Lecture</i></p>
19 th Nov 2019	150	<p>The Fairey Rotodyne by David Gibbings, Chief Flt Test Engineer</p> <p>Synopsis:</p> <p>The 6th November 2017 was the 60th anniversary of the maiden flight at White Waltham of the revolutionary Rotodyne, the world’s first vertical take-off airliner. The lecturer told the story of Rotodyne from its conception, through the flight test programme and on to the disappointment of its cancellation in 1962.</p> <p><i>Joint lecture with IMechE Young Members</i></p>
10 th Dec 2019	120	<p>The Heathrow Air Traffic Control System at 99% Capacity – Even under Crash Conditions by Adam Spink, London Heathrow ATC</p> <p>Synopsis:</p> <p>The lecture provided an overview of Heathrow ATC and how it copes with the demands of delivering a schedule which operates at times at 99.5% of maximum capacity. It went on to describe of some of the unique procedures and tools used to permit such a mode of operation and concluded with the story of the BA38 crash at London Heathrow and how ATC coped with it.</p> <p><i>Joint lecture with Loughborough University Velocity Society</i></p>

Lecture Programme for the 2019/20 Season (Part 1 of 2)

Table 1

Date	No. of Attendees	Lecture
21 st Jan 2020	100	Nanosatellites: Enabling technologies for novel mission architectures by Dr Kate Smith, Lecturer in Aerospace Engineering, University of Manchester Synopsis: Companies such as Planet labs develop large constellations of very small satellites for Earth observation with the potential of higher temporal resolution than smaller constellations of larger satellites. The lecture reviewed the potential technologies and satellite configurations that could permit such constellation configurations together with likely expansion in the use of such satellites in the future.
11 th Feb 2020	150	Quicksilver - regaining world water speed record for Britain by Nigel McKnight Synopsis: The lecture described the technical challenges involved in developing the Quicksilver vehicle which is to be used in the attempt to break the current Water Speed Record. The vehicle is the heaviest and most powerful challenger to date. It is powered by a Rolls Royce Spey engine. The Quicksilver project has built upon the foundations the earlier British water speed record holder Bluebird K7.
25 th Feb 2020	100	High alpha testing and flight safety by Terry Smith. BAE Flight Test, ret'd Synopsis: The lecture covered the lessons from 35 years of high incidence flight testing of combat aircraft - Sepecat Jaguar, Panavia Tornado, FBW Jaguar Digital FCS Demonstrator, EAP Demonstrator and Eurofighter Typhoon. It also described the various tests such as Deliberate Spinning Test, Carefree Handling Test and Automatic Low Speed Recovery Mode Test. <i>Joint lecture with Loughborough University Velocity Society</i>
17 th Mar 2020	Meeting cancelled	Rolls-Royce Electrification Strategy &The All-Electric Demonstrator ACCEL Project by Matheu Parr, ACCEL Programme Manager, Rolls-Royce PLC <i>Joint lecture with IMechE</i>
5 th May 2020	Meeting cancelled	The North American X-15, the first manned American spacecraft by Roger Allton, RAeS Loughborough Branch Member <i>Joint lecture with IMechE</i> Lecture to be preceded by AGM at 7.00 p.m.
11 th June 2020	Meeting cancelled	Loughborough University MEng Final Year Aircraft Design Projects – series short lectures This series of mini-lectures will be given by groups of final year MEng students and will describe the results obtained from their projects. <i>Joint Event with University Dept of Aero & Auto Engineering</i>

Lecture Programme for the 2019/20 Season (Part 2 of 2)

Table 2

Dates	Lectures being Sought	Lecturer
Tuesday 13 th Oct 2020	Hydrogen/Electric Powered Hybrid Aircraft	Julian Renz, ZeroAvia
Tuesday 3 rd Nov 2020	Team Tempest - The UK's advanced fighter project.	Michael Christie, Business Development Director, BAE Systems.
Tuesday 17 th Nov 2020	Active Rotor Blade – The next great leap in rotor performance improvement	Simon Stacey, Active Rotor Studies Technical & Programme Lead, Leonardo
Tuesday 8 th Dec 2020	James Webb telescope	John Thatcher, Ex Project Manager for the JWST Mid-Infrared Instrument delivered by Airbus Defence & Space, Stevenage.
Tuesday 19 th Jan 2021	The Business of Borrowing Bird Technology ; Understanding and Mimicking Avian Flight Machines	Dr Peter Thomas
Tuesday 9 th Feb 2021	Air Accident Investigation Branch	Peter Coombs, Senior Inspector of Accident Investigation, Air Accidents Branch
Tuesday 23 rd Feb 2021	Future Hybrid Propulsion	Mark Taylor, Chief Design Engineer Rolls-Royce, Derby
Tuesday 16 th March 2021	The Miles M52	Mike Hirst, RAeS Loughborough Branch Committee Member
Tuesday 4 th May 2021	Air Race E – Propulsion Futures	Richard Glassock, Research Fellow, University of Nottingham
Tuesday 8 th June 2021	Loughborough University MEng Final Year Aircraft Design Projects – series short lectures	Loughborough University Dept. Aeronautical Engineering and Transport Studies Students
Order of Preference	Possible Visits	
1	RAF Cosford	
2	Cold War Jets at Bruntingthorpe	
3	Midlands Air Museum, Coventry	
4	National Space Centre	
5	Newark Air Museum. N. B. Note “special days” including “cockpit fest”.	
6	RAF Marham (F35s) Contact: Loughborough DTUS	

Proposed Lecture and Visits Programme for the 2020/21 Season

Table 3