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Cover artwork: Isaac Newton's Prism: created by Sir Quentin Blake on the event of the University's 800th Anniversary as a way of marking the outstanding contribution to science and art that the University and its members have made over the years.

Report designed by www.dangould.co.uk, printed by Minuteman Press, Cambridge



Welcome to the Isaac Newton Trust's twenty-eighth Annual Report.

This has been an extraordinarily busy year for the Isaac Newton Trust, not least because we moved our offices from the two student rooms we have occupied in Trinity College for the past 20 years to the University's new development at Eddington, where we share accommodation with the Office of Postdoctoral Affairs (OPdA). The fact that we were able to do this without breaking our stride has been a tribute to the excellent organisational skills of our Senior Administrator, Dr Nichola Tooke, and the practical help and support we have received from both Trinity and from the University.

The Trust balances delicately on the interface between the College and the University, facilitating the flow of financial support from one to the benefit of the other. While this can be a difficult position to hold, and indeed to explain (even within the University), it predisposes the Trust to nimbleness and frees us to respond quickly and inventively to interesting new challenges.

We believe that the Trust has, over the past three decades, established a reputation as an independent body that applies the expertise and wisdom of a group of senior members of the University to the question of how best to target Trinity's donation to the greatest good in the University, whether by enabling truly innovative research or fine scholarship, or by supporting those taking their first steps on the ladder of independent research (or, indeed, both). That the Trust is neither wholly of the College, nor of the University, is reflected in our newly-revised Deed, which locates the responsibility for the appointment of Trustees from among the senior officers of the University with the Trust itself, while also allowing for two Fellows of Trinity to be among those elected.

The Trustees have been delighted with the response to our new Strategic Grant programme, which has attracted an extraordinarily wide range of applications for projects ranging from support for refugee academics in Cambridge, through funding to secure the future of a major research Centre, to seed-corn funding for a large interdisciplinary programme of research in the Clinical School. We look forward to receiving further similarly varied and innovative applications in the 2018-19 round. Meanwhile, our standard research grants and fellowships programmes have continued to deliver much-needed support across a wide range of subjects, with 65 grants ranging from £5,000 to £60,000 awarded by the Trustees, in addition to those awarded by the Schools in collaboration with the Trust.

In the coming year, we will celebrate 30 years since the Trust's foundation and the first meeting of Trustees on 22 November 1988. In next year's Annual Report, we hope to present an overview of the Trust's activities over 30 years in channelling the generosity of Trinity College into the University's research, learning and education, including its seminal role in major institutional projects and in setting up the student bursaries scheme.

If you have any queries or comments on this Report, or on the Trust in general, please do not hesitate to contact me.

Dr Laurie Friday

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Patron

H.R.H. The Prince of Wales

Trustees

Professor Lord Robert Mair (Chairman)
Professor Sir David Baulcombe ('Trinity Trustee' from 01 October 2017)

Professor Jeremy Baumberg
Professor Stefan Collini (to 30 April 2018)

Professor Sarah Colvin

Professor Gerard Evan

Professor Frank Kelly

Professor Richard Smith

Professor Dame Marilyn Strathern

Professor Dame Jean Thomas

Sir Gregory Winter (ex officio as Master of Trinity to 06 July 2017, then 'Trinity Trustee' from 01 November 2017)

Officers & Staff

Dr Laurie Friday (Director)
Mr Donald Hearn (Treasurer)
Dr Nichola Tooke (Senior Administrator)
Ms Janet Sparrow (Research Administrator)

Aims & Objectives of the Trust

'To promote education, learning and research in the University of Cambridge.'

The Isaac Newton Trust is an exempt charity under the Charities Act 2011 as a connected institution of the University of Cambridge and is regulated by HEFCE.

The Postdoc Centre, 105 Eddington Place Cambridge CB3 1AS

Tel (01223) 339933 www.newtontrust.cam.ac.uk

DIRECTOR'S REPORT

The Trust's Funding Activities

Our headline figures for 2017-18 (p. 31) reveal that the Trust continues to spend more than it receives (indeed expenditure has been more than double our income in both 2016-17 and 2017-18), and that we are inevitably drawing down our reserves. This is in accordance with the Trustees' agreed policy to mobilise a portion of our reserves in support of larger research projects. Investments will be reduced to a level that ensures our forward commitments can be honoured, plus a contingency sum that will allow the Trustees to respond to an unmissable opportunity to secure a major new project for the University. Trustees are monitoring the progress of this strategy and will amend their commitments as necessary in future.

In deciding who and what to fund, and to what extent, the Trustees continue to hold to the following general principles:

- · to promote excellence in research and scholarship;
- · to respond flexibly to emerging needs;
- to prefer to help new projects get off the ground, committing to projects for no more than 5 years, and reviewing existing projects at intervals;
- to prioritise early career researchers, helping to nurture and grow the University's intellectual capital;
- to assist the University to secure or attract matching funding from outside sources wherever possible.

Isaac Newton Research Grants

Three categories of grants are awarded in three termly rounds per annum:

- Emergency Grants: up to £30k over 12 months: for bridging salary costs, short periods of underwriting, or start-up grants;
- Project Grants: up to £60k over three years: for initial partner funding for new research projects, grants for unconventional, innovative forms of research and scholarship;
- Equipment Grants: awards or loans of up to about £50k each for exceptional requests for a key research item, to be funded in partnership with other University institutions, or for costs associated with use of shared facilities

Over the years, the Trustees' willingness to consider applications for equipment has ebbed and flowed. In the past two years, however, it has become evident that the demand is very considerable, partly because the main external funding bodies increasingly require the institution to provide a degree of matching funding for major items of equipment, or, in the case of fellowships, provide salary support but expect the institution to provide the equipment required. The Trustees recognise the challenge that this poses for securing the sophisticated instrumentation required for cutting-edge research in the sciences. Given that the Trust can, at best, make only a modest contribution, how can this be achieved most effectively? Trustees have agreed, where appropriate, to make modest interest-free loans to provide the seed-corn from which a multi-faceted application can be assembled and allow the equipment to be secured before the last piece of the package has fallen into place. These loans, which are repayable over five years, appear for the first time in our Accounts as 'Programme-Related Investments'.

Our new category of **Strategic Research Programmes & Projects** is managed by a single annual call for preliminary applications in Michaelmas Term. Selected bids are invited to submit a full application in Lent Term. Applications are channelled through Chairs of the Schools or, in the case of interdisciplinary bids, a Pro-Vice Chancellor, and may bid for up to £1m over five years for a large, institutional programme of strategic value to the University for the promotion of education or research. The first call, in November 2017, attracted nine applications, of which seven were selected to go through to the second round, and all of these were funded at least in part (see Fig. 5).

Since 06 April 2017, all employers with a pay bill of over £3m per annum are required to pay an Apprenticeship Levy of 0.5% on all salaries, to be collected through PAYE. The Trustees note that this is a matter for the University as the employer, and that the Trust should not make any allowance for this levy in the costs of salary contributions.

Early Career Research Fellowships

The Trustees are committed to helping to launch the independent careers of early career researchers across all subjects by providing matching funding on behalf of the University for a number of intensely competitive Early Career Fellowship programmes. These awards account for about 25% of the Trust's annual expenditure (Fig. 9), and deliver excellent value for money. More details about our Early Career Fellowships programmes can be found in pages 22-25.

The Trust now supports about 70 early career Fellows, in an astonishing range of subject areas, in Cambridge at any one time. The Trustees have been very keen to harness some of this energy by bringing these Fellows together in a creative net-working event. We held our first 'Isaac Newton Trust Fellows Day' at the Postdoc Centre, Eddington, on a hot and gloriously sunny day in June. Twenty-four Fellows attended, 16 of whom presented five-minute summaries of their research. Topics were extremely wide-ranging: India's democratic boom; microbial communities in wine-making; political thought and global intellectual history of the Eastern Question; interactions between light, electric currents, and electrons in single nanoparticles; banking in Ghana; beasts in St. Petersburg; garbage in New York; and the poetics of Sunnism. Given the extremely positive feedback, the Trustees agreed that the Fellows' Day should become an annual event and should be expanded to include INT/College Junior Research Fellows.

Starting in October 2018, we have undertaken to help 'our' Fellows, many of whom come from outside Cambridge and most of whom do not already have College associations, to find a College. Incoming Fellows have no obligation to participate in this scheme, and are free to explore the possibilities themselves, but the Trust will help those who would like assistance. The 17 Colleges with whom we have arrangements to support JRFs have been asked to indicate whether or not they would wish to consider forming an association with one or more 'INT' Fellows in each intake and several have agreed to participate. We look forward to discovering how this new scheme develops in 2018-19.

As we approach a possible break from the EU, the need to support academic collaboration between the UK and Europe has never been greater. The Trustees are proud to provide an institutional contribution to enable the Humboldt Foundation's Feodor Lynen Early Career Fellowships to be held in Cambridge and to support a new Centre for the Study of Ethics, Human Economy and Social Change in Cambridge, a partnership with the Max Planck Institutes at Halle/Saale and Göttingen.

Partnerships with the Schools

The Trustees have continued their commitment to research funding for newly-appointed University Lecturers and independent Principal Investigators (PIs) through grants administered by the Schools of Biological Sciences/ Clinical Medicine and Physical Science/Technology. Trustees consider their annual contribution to the Cambridge Humanities Research Grants (CHRG) and small grant scheme, which is managed by the Schools of Arts & Humanities and Humanities & Social Sciences, to have a beneficial impact far in excess of the size of the grants. All three competitions are academically and administratively centred on the pairs of Schools concerned and Trustees feel that this achieves their goal of targeting funding most effectively.

Partnerships with the Colleges

The Trustees are reviewing their existing relationships with the Colleges, in particular those with fewer resources, and especially where this can benefit early career researchers. The Trust's 'Time-Limited' Teaching Fellowships will lapse after this year, as their primary purpose of introducing postdoctoral researchers to Colleges in teaching positions has now largely been superceded by the efforts of the University and Colleges to increase opportunities for College associations for postdocs. The Trust has begun exploring other ways in which we can support the research ambitions of the less well-off Colleges, such as through the 'INT Fellows' programme (see above).

Summary of new grants awarded 2017-18

In brief, the Trust has awarded or match-funded the following new awards in 2017-18:

- 41 Research grants
- 6 Strategic grants
- 17 Leverhulme Early Career Fellowships (for admission in 2018-19)
- 1 Humboldt Feodor Lynen Early Career Research Fellowship
- 3 Newton/College Junior Research Fellowships (for admission in 2018-19)
- 3 College Teaching Officer Research Leave grants
- 73 MPhil bursaries jointly with the Colleges

Governance

The **Revised Trust Deed** was adopted and signed into effect at the meeting on 6 July 2017. The revision incorporates the following changes, which had been agreed by the Council of Trinity College:

- 1. ex officio trusteeships for the Master and Vice-Master are replaced by the appointment of one, or at maximum two, Trinity Fellows by the College Council; the remainder of the Trustees to be appointed by the Trustees themselves;
- 2. provision for the terms of office of the Chair;
- 3. the status of the Director and Treasurer as not being Trustees is clarified;
- 4. the limit on terms of office for the Director to be removed;
- 5. a quorum for decisions made at meetings to be fixed at half the number of Trustees, rounded up as necessary, present and voting;
- 6. Trustees may delegate decisions on certain matters to Sub-Committees;
- 7. Trustees may make decisions in cases of emergency by circulation;
- 8. Where a decision is required by circulation for a small grant (less than £5,000), the Director shall seek the agreement of any two Trustees;
- 9. Provision to be made for future amendment of the Deed and dissolution of the Trust;
- 10. Where an amendment to the Deed is proposed, Trustees should consult both the College Council and the University, to seek their approval for the changes.
- 11. The Deed was also brought up to date by adding standard clauses in line with those for exempt charities under the Charities Act 2011.

Data Protection

Much effort has gone into preparing the Trust for compliance with new EU legislation governing the storage and use of personal data (General Data Protection Regulations, GDPR) introduced on 25 May 2018. Our task was made much simpler by the University's provision of a website and advisory service in the Registrary's Office to help institutions to prepare for the transition. We have been able to adapt the University's guidelines and draft statements and have benefitted from advice and training available in the University.

The Trust is a separate legal entity from the University, and so is a separate 'data controller' but, as it is not a public authority and does not use large quantities of sensitive data, it does not need a formal GDPR-standard Data Protection Officer.

We have reviewed the Trust's current holdings of personal data in the light of the retention policy for various categories of data adopted by the University. The move of our office from Trinity College to Eddington provided the perfect opportunity to take stock of the extensive archive held by the Trust and to remove duplicate material and data that are no longer needed and are of no archival value; this material has been shredded. In general, it is fair to say that the Trust had thrown nothing away in the past, so this proved to be a major, and at times, extremely informative, process.

We have also begun planning for a rolling programme for the review of documentation that we collect from applicants for funding and of the material we generate to support the subsequent management of grants, and how much of it we keep.

Our website has been updated to include 'privacy notices', for applicants and awardees, about the uses to which their data may be used by the Trust and our applications packs now contain consent forms for applicants and anyone whose cv forms part of the application.

Details of the Trust's data holdings have been submitted to the University's Information Asset Register (https://iar.admin.cam.ac.uk/).

Patron, Trustees and Officers

We are delighted that His Royal Highness, The Prince of Wales, has graciously agreed to continue as our Patron to 31 July 2020, after which his patronage lapses automatically unless an extension has been agreed.

The Trust received an invitation to a reception at Buckingham Palace on 22 May 2018, on the occasion of the 70th birthday of HRH The Prince of Wales, to 'celebrate the work of His Royal Highness's Patronages, Charities and Military affiliations and others involved in public service. The Director, Dr Tooke, Ms Sparrow, and two previous Administrators (the Revd Canon Sandie Barton and the Revd Gill Smith) attended (see photograph, p. 10).

Professor Lord Mair was re-elected Chairman from 01 October 2017 for a further 3 years. This will be Lord Mair's third and final term of office.

On the adoption of the Revised Deed, on 06 July, Sir Gregory Winter's membership of the Trustee body *ex officio* as Master of Trinity lapsed. We are very pleased, however, that he was then appointed by the Council of Trinity College as a 'Trinity' Trustee with effect from 01 October 2017. Professor Sir David Baulcombe, Regius Professor of Botany and a Royal Society Research Fellow, was appointed as the other 'Trinity' Trustee for an initial term of three years, from 01 October 2017.

Professor Stefan Collini stood down on 30 April 2018, in accordance with the terms of the Trust Deed, having reached the end of the third of three consecutive terms of service. The Trust is immensely indebted to Professor Collini, who has contributed to the Trust an extraordinary depth of knowledge of the research environment in the Arts and Humanities, and we will miss his generous and wise contributions.

The Trustees agreed to elect Professor Rae Langton, Knightbridge Professor of Philosophy, Chair of the Faculty of Philosophy and Fellow of Newnham College, for three years in the first instance, commencing on 02 July 2018.

Two long-standing Sub-Committees of the Trust were disbanded as being redundant, as a result either of changes in the Trust's funding priorities (Research Student Support) or the devolution of the selection of candidates to School panels (Leverhulme Early Career Fellowships).

A new Sub-Committee was created to scrutinise Research Grant applications in the Schools of Biological Sciences and Clinical Medicine and recommend which should be considered for awards. This development is in response to the large numbers of applications and wide range of specialisms in these subject areas, which sometimes lie outside the expertise of the Trustees themselves. The new Sub-Committee is chaired by a Trustee (Professor Thomas), and comprises two senior academics nominated by each of the two Schools, and the Director. The Trustees monitor the decision-making process, the number and quality of applications from the Schools of Biological Sciences and Clinical Medicine, and adjudicate on the nature, number, size, and duration of awards. This approach was tried successfully in the previous financial year and adopted formally in July 2017.

The Office

The Office moved to its new premises in the Postdoc Centre, Eddington, on 20 September 2017. An agreement is being drawn up with the University to formalise the arrangement, which would be valid for 5 years in the first instance. The Trust will pay a peppercorn rent for five years, but will also pay a contribution to the cost of the construction of the Trust's offices within the building, together with a proportionate fee for estate management and utility costs. We have purchased new furniture at a cost of about £1,000 and new IT hardware, which has been sourced through the University's Information Services (UIS). We are delighted that UIS is supporting the Trust's IT requirements and are very grateful to the UIS staff from their assistance in setting up our connections.

Trinity College continues to provide a payroll and pensions service for the Trust for the time being.

Dr Nichola Tooke, our Senior Administrator, has been training on the Association of Accounting Technicians' book-keeping course. She has passed her examinations at level 2 and is embarking on level 3 with a view to bringing our accounting activities in-house during 2018-19.

Ms Janet Sparrow continues to provide excellent support as the Trust's part-time Administrator with particular responsibility for Research Grants.

The staff have also completed a series of training sessions to give us a greater understanding of our longestablished Access database and enable us to be more effective in managing our grants and keeping appropriate records.

THE PINICE OF WAILS Galden Party, Buckingham Palace, 22 May 2018. LPC Revol Calino Sandie Bartori, Revol Gilli Smith, the Director, but notice and wis sparrow.

The Prince of Wales' Garden Party, Buckingham Palace, 22 May 2018. LR: Revd Canon Sandie Barton, Revd Gill Smith, the Director, Dr Tooke and Ms Sparrow.

DIRECTOR'S REPORT

AWARDS MADE IN 2017-18

RESEARCH GRANTS

Project and Programme Research Grants

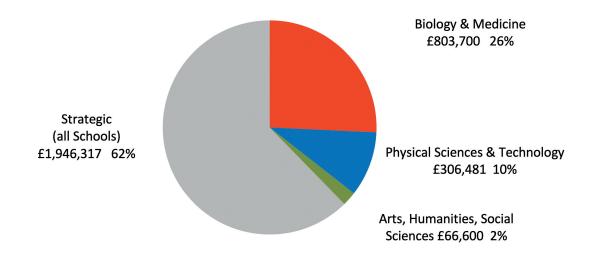
INT Research Grants are awarded to Departments and other University institutions, across the full range of subjects, normally for the support of a specific project under the leadership of a named Principal Investigator (PI). Particular attention is given to the qualities of the research project, on which we seek advice from external and internal referees, but consideration is also given to the likely benefits of a grant to the Department, the PI, and/or early career researchers involved. Decisions are made by the Trustees in round-table discussions at meetings held three times a year.

While most grants are contributions to support the salary of a Research Associate, often near the start of his or her post-doctoral career, an increasing proportion of expenditure has been taken up by grants for urgently-needed new equipment.

However, the main change in the pattern of expenditure in the 'research grants' category has been the shift towards larger grants for major, sometimes interdisciplinary, projects of strategic importance to the University.

Trustees committed £3.0m to new Research Grants in 2017-18 (Fig. 1), less than in the previous year, but still significantly higher than spending prior to 2016, when the new programme of Strategic Grants began (comparable figures are £3.6m in 2016-17; £1.0m in 2015-16, £1.2m in 2014-15).

Figure 1: New research grants awarded 2017-18: by School and Strategic Grants



Over the year, 73 applications (61 in 2016-17; 55 in 2015-16, 69 in 2014-15, 55 in 2013-14), were received across all Schools and institutions of which eight were for the purchase of major items of equipment and nine were for Strategic Projects.

Forty-eight new awards were made, seven more than last year.

The success rate across all Schools and categories of grant was 67% (66% in 2016-17, 72% in 2015-16, 58% in 2014-15, 66% in 2013-14).

Trustees do not currently limit the number of applications for Research Grants that they are willing to consider from any given School or from any particular department or faculty. There is, however, a persistent pattern of marked differences between the numbers of applications received from the University's constituent institutions (see Fig. 2). This reflects to a large extent the prevalent modes of research in different Schools: in Biological Sciences, as in most STEM subjects, the norm is a research group including a number of postdoctoral workers.

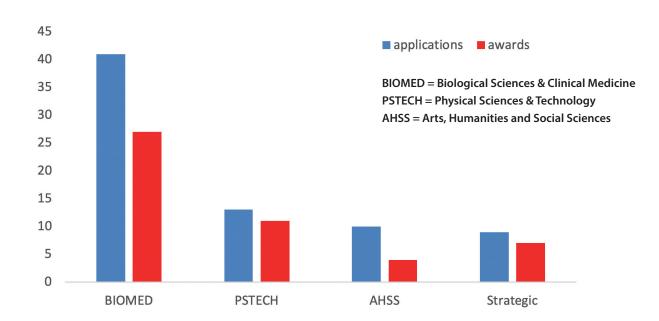


Figure 2: Research Grants 2017-18: applications and awards, by School/Institution

For further details of these grants, see the list of awards (pages 16-19).

The frequency distributions of grant duration (Fig. 3) and value (Fig. 4) reflect the establishment of distinct types of Research Grant award that began in 2015-16: there is increasing demand for small (<£20k), short (up to one year) '**Emergency Grants**'. These are used to tide key postdoctoral workers through the end of a grant to the start of the next, and also to ensure that the impetus achieved during a pilot project can be carried through an application to an external funding body for a major project grant.

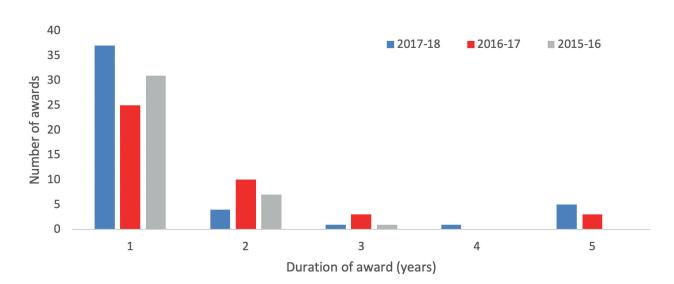


Figure 3: Research Grants 2017-18: duration of awards, compared to 2016-17 and 2015-16





Seven **Equipment Grants** have been made this year. In some cases, relatively modest sums are sought to allow access to existing equipment, but the Trust is also asked to provide contributions to multi-funder packages for the purchase of major items of specialised equipment. The cap on the sum that can be applied for in this category is £50,000. However, given the very high costs involved, the Trustees have also approved two interest-free loans to allow the purchases to go ahead immediately; these loans will be repaid over five years, either from additional funding secured subsequently from outside the University, or from user access revenue. These loans are included in the expenditure figures.

Strategic grants (Fig. 5) ranged in value from £20,000, for a technical course for conservation scientists from tropical regions, to £750,000 to be spent over 5 years as a contribution to a major new initiative in the School of Clinical Medicine. Half of the total commitment in this category was accounted for by projects in Biology and Medicine (red sectors), while a further 45% was awarded in the general area of the Arts, Humanities and Social Sciences (green sectors). A grant of £100,000 was made to the central offices as a contribution to the support of refugee academics hosted in Cambridge.

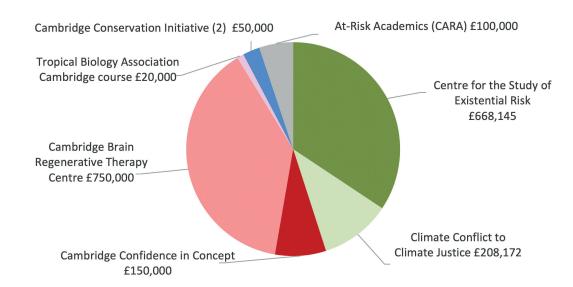


Figure 5: Strategic Research Grants awarded 2017-18: by School and project

Most, but not all, of the money awarded for research projects is actually spent. Any unused cash remaining at the end of the grant is returned to the Trust. However, some awards are not taken up if, for example, matching funding does not materialise, or if applicants provided with bridging funds are successful in finding alternative support; these sums are written back in the accounts.

What recent INT Research Grant holders have said:

'So thrilled about this grant. It's a wonderful scheme to boost young post-docs. Thank-you, Newton!'

We (myself and the post-docs who were funded on the Trust's grant funding) are extremely grateful to the Trustees for the decision to support the project. It has been invaluable for both post-docs in terms of their employment opportunities and for taking this topic area further into a large collaboration...'

'The bridge funding has kept the lab afloat and enabled us to complete the next iteration of a big paper, not to mention keeping hard won expertise in the lab - am very grateful; and delighted that it has worked out so well.'

'We had very productive field seasons during the summers of 2015-2017, and these would not have been possible without the support of the Isaac Newton Trust.'

'A host of interesting unanswered questions have emerged from the work we have done together and these represent a stimulus to the submission of further grant applications to external funding bodies.'

'I would like to express my deepest thanks....for giving me this wonderful opportunity to complete my project and to acquire the skills and experience that will be invaluable in the future.'

'... nothing of this would have been possible without the timely and generous support of the Isaac Newton Trust'.

Isaac Newton Trust Research Grants awarded in 2017-18

Schools of Arts, Humanities and Social Sciences

Museum of Archaeology and Anthropology (Professor Nicholas Thomas)

Pacific presences: impact and bridge funding

Partial underwriting over seven months towards the salary costs of two research associates.

History (Dr Christopher Briggs)

Investigating valuations of forfeited possessions in sixteenth-century England using coroners' inquests Two-month grant in part-support of a research associate.

History (Dr Pedro Ramos Pinto)

Predicting growth: historicising statistics in Nehru's India

A grant to underwrite six months of the salary costs of a research associate.

Politics and International Studies (Professor Peter Nolan)

Impact of China's 'One Belt One Road' initiative on host countries

One-year grant in part-support of a research associate.

Schools of Physical Sciences and Technology

Chemistry (Professor Christopher Abell)

A fragment approach: targeting phosphopantothenoylcysteine synthetase (CoaB) of mycobacterium tuberculosis Six-month grant in support of a research associate.

Earth Sciences (Professor Nicholas Rawlinson)

Understanding continental collision: a case study of North Borneo and the South China Sea

One-year grant towards the salary costs of a research associate.

Earth Sciences (Dr Alexandra Turchyn)

Ocean acidification: what controls the rate of CaCO3 dissolution?

A grant over six and a half months in support of a research associate.

Engineering (Dr Athina Markaki)

Bioengineering a vascularized human bile duct

Two-year grant towards the salary costs of a research associate.

Geography (Dr Charlotte Lemanski)

Infrastructural citizenship in South Africa's mega-human settlements

A grant towards the costs of eight months fieldwork.

Geography (Dr Iris Möller)

Are all salt marshes created equally? A study of root growth and decomposition rates in natural and restored coastal wetlands in the UK

Six-month grant in support of a research associate.

Geography (Professor Sarah Radcliffe)

Learning how to leave no one behind: intersectionality and Ecuador's 'Buen Vivir'

Seven-month grant towards the costs of research assistance.

Materials Science and Metallurgy (Professor Sohini Kar-Narayan)

A new look at ionic conductors - silver chalcogenides - as device and energy materials One-year grant in support of a part-time research associate and her consumable costs.

Physics (Dr Nadav Avidor)

Matrix Dynamics: a new experimental approach to studying water on surfaces A grant towards the costs of machine use.

Physics (Dr Marc-Olivier Bettler)

Search for New Physics with rare decays at the LHCb experiment Partial underwriting over two and a half years towards the salary costs of a research associate.

Physics (Dr Lorenzo Di Michele)

Amphiphilic DNA nanostructures as artificial membrane receptors One-year grant in part-support of a research associate.

Schools of Biology and Clinical Medicine

Clinical Biochemistry (Institute of Metabolic Science) (Dr Lisa Marie Nicholas)

Exposure to maternal obesity and epigenetic inheritance of β -cell dysfunction in offspring Eight-month grant towards the salary costs of a research associate.

Genetics (Professor Anne Ferguson-Smith)

Targeting active chromatin states in mammals *in vivo* One-year grant in part-support of a research associate.

Haematology (Dr David Kent)

Single cell isolation from heterogeneous normal and malignant cell populations A grant towards the purchase of a robot.

Pathology (Professor Geoffrey Smith)

A role for Spir-1 in innate immunity?

One-year grant in part-support of a research associate.

Pathology (Dr Aartjan te Velthuis)

Understanding influenza virus RNA synthesis at the single-molecule level A grant towards the purchase of a microscope.

Pharmacology (Professor Laura Itzhaki)

A repeat-protein platform for the treatment of pancreatic, colorectal and lung cancers Partial underwriting over six months in support of a research associate.

Physiology, Development and Neuroscience (Professor Sarah Bray)

Mechanisms for switching RNA isoforms in response to signalling One-year grant towards the salary costs of a research associate.

Physiology, Development and Neuroscience (Professor Graham Burton)

Lipids: their roles in implantation, placentation and histotrophic nutrition One-year grant in part-support of a research associate.

Physiology, Development and Neuroscience (Dr Kristian Franze)

The mechanical control of neuronal polarisation

Partial underwriting over eight months towards the salary costs of a research associate.

Physiology, Development and Neuroscience (Professor Roger Hardie)

Ca2+ feedback control of TRP channels in *Drosophila* photoreceptors

Nine-month grant in part-support of a research associate.

Physiology, Development and Neuroscience (Professor Bill Harris)

Super-resolution microscopy for investigating cellular architecture at the nanoscale A grant and a loan towards the purchase of major microscopy equipment.

Physiology, Development and Neuroscience (Dr Julija Krupic)

How hippocampal spatial representations are generated and used in navigation A grant towards the purchase of a high-power femto-second laser.

Plant Sciences (Dr Samuel Brockington)

Evolution of fog harvesting adaptations in the deserts of South Africa A grant over seventeen months towards research costs.

Plant Sciences (Dr Julia Davies)

Mechano-purino signalling in abiotic stress

Three-month grant in part-support of a research associate.

Plant Sciences (Dr Andrew Tanentzap)

Evolutionary drivers of the world's biodiversity hotspots Six-month grant for the salary costs of a research associate.

Psychiatry (Dr Li Su)

Multimodal imaging and computational modelling of Dementia with Lewy Bodies One-year grant in part-support of a research associate.

Psychology (Dr Kai Ruggeri)

Scaling up interpersonal psychotherapy for persons affected by the Syrian crisis in Lebanon Four-month grant towards consumable costs.

Cambridge Stem Cell Institute (Dr Kevin Chalut)

Statistical mechanics of cell state transitions

A grant over twenty months towards sequencing costs.

Cambridge Stem Cell Institute (Professor Robin Franklin)

Transmission electron microscope

A grant towards the purchase of an ultra-microtome as part of a TEM facility.

Cambridge Stem Cell Institute (Dr Brian Hendrich)

Bioinformatic analyses of chromatin remodelling during cell fate transitions in embryonic stem cells Six-month grant in support of a bioinformatician.

Veterinary Medicine (Dr Cinzia Cantacessi)

The causality of host-pathogen-microbiota interactions in sheep parasite gastroenteritis One-year grant towards the salary costs of a research associate.

Veterinary Medicine (Dr Lucy Weinert)

Using whole genome sequencing to mitigate antimicrobial resistance in a zoonotic pathogen Eight-month grant in support of a research associate.

Zoology (Professor Nicholas Davies)

Exploiting host fear of predators: evolution of hawk-like calls in female cuckoos Six-month grant towards the salary costs of a research associate.

Zoology (Dr Matthias Landgraf)

Regulation of homeostatic synapse growth by redox signalling in neurons

A grant over four and a half months to underwrite part of the salary costs of a research associate.

Zoology (Drs Matthias Landgraf and Tim Weil)

Photo-treatment and high sensitivity imaging across microscopic and macroscopic scales A grant and a loan towards the purchase of a confocal microscope.

Zoology (Dr Marta Zlatic)

Circuit principles of memory-based behavioural choice One-year grant in part-support of a research associate

Strategic Programmes and Projects

Academic Division (Ms Deborah Jones and Dr Matthew Russell)

Supporting at-risk academics

Four-year grant towards living expenses bursaries.

School of Arts and Humanities (Faculty of Philosophy) (Professor Huw Price)

Centre for the Study of Existential Risk

Five-year grant in partial support of three research associates.

School of Clinical Medicine (Professor Patrick Maxwell)

Cambridge Confidence in Concept

One-year grant to pump-prime the translation of pathophysiological insights into patient benefit.

School of Clinical Medicine (Department of Paediatrics) (Professor David Rowitch)

Cambridge Brain Regenerative Therapy Centre

Five-year grant in support of a research team for a new research centre in Paediatrics.

School of Humanities and Social Sciences (Dr Adam Branch)

Climate conflict to climate justice

Five-year grant in support of a research associate and a visiting fellow.

Zoology (for the Tropical Biology Association) (Professor Paul Brakefield)

Trinity College course for young African conservation scientists in 2018

A grant towards the costs of running a short course to develop skills in publication.

Joint Research Grant Programmes with the Schools

Grants made by the Trust in partnership with the Schools, together with major programme grants secured from external sources such as the Wellcome Trust, can add substantial value to the research funding available to researchers in the Schools. The Trust currently contributes £500,000 per annum through this route. These programmes continue to form a major part of the Trust's research funding activities and account for just under 20% of the total spend on research grants in 2017-18.

INT/Cambridge Humanities Research Grants

The administration of CHRG grants is undertaken by the Schools of the Arts & Humanities and Humanities & Social Sciences jointly. Two joint calls for applications are issued annually, for awards in three tiers:

Tier 1: Small Research Grants up to £1,500 (£30k is ring-fenced for this Tier)

Tier 2: CHRGS awards of £1,500 - £20,000 for projects, particularly for early career researchers, especially pilots for applications to external research funding;

Tier 3: Matching funding of up to £10,000 to support mutual exchange with institutions affiliated to Paris Sciences et Lettres and other partners.

Results of the 2017-18 application rounds

	2017-18 awards	2017-2018 total	2016-17 awards	2016-17 total	2015-16 awards	2015-16 total
Tier 1	14	£18,936	19	£26,557	26	£22,121
Tier 2	36	£419,422	25	£334,677	49	£579,781
Tier 3	6	£21,999	5	£16,928	0	0
Total	53	£460,357	49	£378,952	65	£601,902

The Trust contributes £100,000 per year to these awards, with a view to between £30,000 and £40,000 of this grant being allocated for small research grants annually.

Reports on the competition are received from the Schools each year, together with a detailed financial breakdown and individual reports from award holders.

The Trust is committed to continue with these awards to 2019.

INT/Wellcome Trust ISSF/University of Cambridge Research Support for the Schools of Biological Sciences and Clinical Medicine

These research grants are administered by the School of Biological Sciences and the Clinical School. They are aimed at recently-appointed lecturers in the two Schools, or persons appointed to the equivalent posts (as approved by their Head of the School), within 3 years of the project start date. The objective is to provide small research grants to develop projects leading to full applications for external funding. Research grants of up to £80,000 for up to 2 years are available to fund postdoctoral support, equipment and ancillary consumables.

The programme is funded from 3 sources, each of which commits to providing £250,000 of the total value of the budget: the Isaac Newton Trust, the Wellcome Trust's Institutional Strategic Support Fund (ISSF); and the host departments of the successful applications. The involvement of the Isaac Newton Trust enables new appointees in biological subjects whose research lies outside the Wellcome Trust's remit to secure a contribution to start-up funding.

Selection is carried out by a panel of senior academics from the two Schools; the Wellcome Trust requires final reports on the supported projects and provides external scrutiny of the effectiveness of the programme by auditing the use of the ISSF fund for this purpose.

The Trustees are pleased to note that the Wellcome Trust has renewed the ISSF grant for a further three years in the first instance, with the possibility of an extension to 2021. The Trustees have agreed to support this programme at least up to the Wellcome Trust's mid-term review in 2018-19, and will consider at that point whether or not they wish to support this programme up to 2021.

Results of the 2017-18 application round

- 10 grants were approved by the Schools' Panel for funding (10 in 2016-17; 7 in 2015-16; 7 in 2014-15; 13 in 2013-14):
- Total value of new awards in 2017-18 was £746,645 (£729,315 in 2016-17; £449,520 in 2015-16; £550,719 in 2014-15; £939,055 in 2013-14).

INT/University of Cambridge Early Career Support for the Schools of Physical Sciences and Technology

This joint research grant programme provides modest research grants to allow new lecturers in the Schools of the Physical Sciences and Technology to develop projects leading to full applications for external funding.

The competition is open to University Lecturers in all departments of the School of Physical Sciences and Technology appointed within 3 years of the project start date. Research grants of up to £50,000 are available, for postdoctoral Research Associate support, equipment and ancillary consumables.

The Isaac Newton Trust provides 50% of the total budget; its contribution of £150,000 per annum, together with matching funds from the Schools involved, brings the annual fund to £300,000.

The programme was reviewed in July 2016, and Trustees agreed to continue their support to the end of 2017-18; a further review is now due.

Results of the 2017-18 application round

- 8 grants were approved by the Schools (6 in 2016-17; 7 in 2015-16; 6 in 2014-15; 6 in 2013-14);
- Total value of new awards in 2017-18 was £174,613 (£254,557 in 2016-17; £235,697 in 2015-16; £262,699 in 2014-15; £289,042 in 2013-14)

Early Career Fellowships

Leverhulme Early Career Fellowships

This Early Career Fellowship programme is one of the Trust's longest-standing commitments to the academic training of the next generation of researchers. Since 2007, the Trust has been providing the required institutional contribution of 50% funding for the salaries of researchers selected by the Leverhulme Trust in its national competition. The Isaac Newton Trust matches the Leverhulme Trust's provision of 50% of the salary costs of each Fellow, up to a maximum of £24,000 pa (rising to £25,000 in 2018-19).

Awards are made across the full range of subjects, other than clinical studies, according to eligibility criteria set down by the Leverhulme Trust.

The Trust runs an internal competition to select the best candidates who wish to hold their Fellowships at Cambridge. Academic panels nominated by the Schools make their selection for the field of candidates applying to carry out research in their Schools, applying criteria appropriate to their particular area. The Trustees have fixed the total number of offers of support in principle at 50 and the number available to each pair of Schools is in proportion to their candidates' success at the national level in the past three competitions:

Schools	Awards 2015	Awards 2016	Awards 2017	% over previous 3 years	2018 INT support offers
Arts, Humanities & Social Sciences	11	8	9	52%	26
Biological & Medical Sciences	2	2	2	11%	6
Physical Sciences & Technology	5	6	9	37%	18
Totals	18	16	20	100%	50

Results of the 2018 competition

This year, the Leverhulme Trust reduced the number of awards made nationally from 125 to 100; the success of Cambridge applicants exceeded even last year's remarkable result:

- 76 applications were submitted to the Trust (62 for 2017; 79 for 2016; 68 for 2015)
- 17 of the 100 national awards were made to Cambridge applicants (compared to 20 out of 125 in 2017; 15 in 2016; 17 in 2015)

Leverhulme has also increased the salary contribution from £24k to £25k, so each new offer costs the INT up to £25k per annum, depending on the starting salary, for three years. The maximum total commitment made in 2017-18 for Fellows starting in 2018-19 amounts to £1,130,702.

The Leverhulme Early Career Fellows who will start in 2018-19 are:

Schools	Fellows	Department/Faculty
Arts, Humanities & Social Sciences	Dr Andrew Buskell	History & Philosophy of Science
	Dr Maria Raquel Rojo Carrillo	Music
	Dr Benjamin Chemouni	Politics & International Studies
	Ms Magdalen Connolly	Asian & Middle Eastern Studies
	Dr Yang Liu	Philosophy
	Mr Christopher Markou	Law
	Dr Robert Pralat	Sociology
	Dr Justin Rivest	History
Biological Sciences & Clinical	Dr Gabrielle Davidson	Psychology
Medicine	Dr Lucía Martí-Prats	Psychology
Physical Sciences & Technology	Dr Claire Donnelly	Physics
	Dr Heye Freymuth	Earth Sciences
	Dr Charlotte Kenchington	Earth Sciences
	Dr Charlie McTernan	Chemistry
	Dr Alison Ming	Applied Maths & Theoretical Physics
	Dr Bart de Nijs	Physics
	Dr Jason Sanders	Astronomy

A clear measure of the success of the Leverhume Early Career Fellowship programme is the number of Fellows who leave early, having used the Fellowship as a springboard from which to secure future grants and permanent academic positions. Nine Fellows secured posts during the year at the Universities of Oxford, Bath, Birmingham, Bristol, Leeds, Manchester, Warwick and Göttingen.

What our Leverhulme Early Career Fellows have said:

'The last three years have been a wonderful period allowing me to engage in developing my own research, and I am extremely grateful to the Trust for the support they provided in allowing me to achieve this.'

'The last three years have provided an amazing opportunity to carry out my own independent research, and to build new research skills, without any oppressive constraints or expectations. It is incredibly confidence boosting to know that your research is considered worthwhile and fundable.'

'The value it added to my life and work is difficult to overestimate, and I could not possibly be more grateful.'

ESRC Future Leaders Programme

This programme has now been replaced by ESRC New Investigator Grants. The Trust is not involved in providing matching funding for the new scheme, but continues to support Fellows appointed under the Future Leaders arrangements.

Eight ESRC Future Leaders were still in post in 2017-18:

Department	ESRC Future Leaders	Start	End
Sociology	Dr Ella McPherson	Oct 13	Aug 17
Sociology	Dr Rory Coulter	Nov 14	Oct 17
Law	Dr Sarah Nouwen	June 15	May 18
Law	Dr Veronika Fikfak	Jan 16	Dec 18
Education	Dr Marisol Basilio	Jan 16	Dec 18
Psychology	Dr Idalmis Santiesteban	Apr 16	Mar 19
Political & International Studies	Dr Sophie Roborgh	Oct 16	Sep 18
Sociology	Dr Kate Williams	Jan 17	Dec 18

Humboldt Foundation Feodor Lynen Early Career Fellowships

The Trustees support postdoctoral researchers who have secured a Humboldt Foundation Feodor Lynen Early Career Fellowship to be held in Cambridge under the guidance of an existing Humboldt Fellow. As with the Leverhulme ECFs, these highly-competitive appointments are made by the other institution and the host University is expected to make a substantial contribution to the cost of the fellowship (in the case of Humboldt, about one-third of the total.) The Isaac Newton Trustees have agreed to make a contribution of £1,000 per month for up to 24 months on behalf of the University for all successful Humboldt Early Career Fellows. The Trust is also willing to consider applications from existing fellows whose initial appointment was less than 24 months and for whom an extension to the maximum has been approved by the Humboldt Foundation.

Our new and continuing Humboldt Feodor Lynen Early Career Fellows were:

Humboldt ECF	Department	Start	End
Dr Volker Deringer	Engineering	Oct 16	Sept 17
Dr Christophe Große	Materials Science & Metallurgy	Nov 16	Oct 2018
Dr Matias Acosta	Materials Science & Metallurgy	May 17	Apr 19 (extended)
Dr Simon Pickl	German & Dutch	Oct 17	Sept 19

INT/College Junior Research Fellowships

Isaac Newton Trust/College Junior Research Fellowships were established in partnership with the less well-endowed colleges (the list, which is reviewed annually, can be found at http://www.newtontrust.cam.ac.uk/educsupport/jrf/eligiblecoll) to enable them to appoint Junior Research Fellows in the Humanities.

Colleges submit applications to the Trust with a view to obtaining £15,000 per year, for three years, which approximates to about 50% of the funding needed for a JRF stipend. Where a College has a particularly young or limited alumni profile, the Trust will consider making a grant of up to £20,000 per year. Each College has only one active INT JRF at any one time. There is one round annually, in June/July. Selection of the Fellow is then a matter for the College, which is expected to apply the usual stringent academic criteria.

The Trustees are pleased to note that these awards not only provide an opportunity for Colleges to mobilise some of their smaller trust funds on an occasional basis but also provide a valuable impetus to their fund-raising for future fellowships.

New awards granted in 2017-18:

Only one application was received, and an offer of £15,000 per annum for three years for a JRF to commence in 2019 was made to Girton College at a total cost of £45,000.

Newton Trust/College JRFs in post during 2017-18 were:

College	JRF	Faculty/Department	Start	End
St Catharine's	Dr David Waddilove	Law	Oct 14	Sep 17
Fitzwilliam	Dr Stuart Middleton	History	Apr 15	Mar 18
Churchill	Dr Conor O'Brien	History	Oct 15	Sep 18
Clare Hall	Dr Daniel Jolowicz	Classics	Oct 15	Sep 18
Newnham	Dr Mélanie Lamotte	History	Oct 15	Oct 17
St Edmund's	Dr Charis Charalampous	English	Oct 15	Sep 18
Downing	Dr Edward Cavanagh	History	Oct 16	Sep 19
Darwin	Dr Adrian Weller	Engineering	Oct 17	Sep 20
Fitzwilliam	Dr David Winters	English	Oct 17	Sep 20
Robinson	Dr Benjamin Guy	Anglo-Saxon, Norse & Celtic	Oct 17	Sep 20

We congratulate our recent JRFs, Dr David Waddilove, who is now a Postdoctoral Fellow in Harvard's Project on the Foundations of Private Law, and Dr Mélanie Lamotte, who has been awarded a Mellon Post-doctoral Fellowship at Stanford University.

New JRFs appointed by the Colleges to take up posts in the next academical year are:

St Catherine's	Dr David Callender	Anglo-Saxon, Norse & Celtic	Oct 18	Sep 21
Selwyn	Dr Helena Phillips-Robins	MML/Italian	Oct 18	Sep 21
St Edmund's	Dr Noah Carl	POLIS	Oct 18	Sep 21

COLLEGE TEACHING PARTNERSHIPS

As in the past, the Trust's partnership with Colleges has largely focussed on the support of College Teaching Officers whose primary employment is to teach for their College and who may have limited opportunities to teach in their Faculty or to apply for research leave. CTO grants made to Colleges by the Trust have the added advantages of increasing the pool from which University teaching may be drawn, as well as providing career development opportunities for the CTOs themselves.

'Time-Limited'Teaching Fellowships, on the other hand, provide an opportunity for postdoctoral researchers employed by the University to gain experience of undergraduate teaching and integration into College fellowships.

Junior Research Fellowships (page 24) and shared MPhil Bursaries (page 28) represent the Trust's contribution to research posts and studentships in Colleges.

Newton Trust Teaching Fellowships (Formerly 'TLTF')

The Trust has, since 2000, offered up to 30 four-year Newton Trust Teaching Fellowships at one of the less well-endowed Colleges for young postdoctoral researchers who would provide 4 hours of supervision per week and will be elected to teaching Fellowships http://www.newtontrust.cam.ac.uk/educsupport/jrf/eligiblecoll).

These Fellowships had served a very useful role in helping to engage Colleges more closely with the very many post-doctoral researchers who do not hold College fellowships, or indeed, in the majority of cases, enjoy existing College membership. However, the demand for these awards has been much reduced since the programme began (Fig. 6), partly because of the very considerable efforts made by the Colleges over the past decade to increase their engagement with postdoctoral researchers through other programmes. The Trustees have therefore agreed that the programme could be wound up, with the 2017-18 elections being the last. The Trust will honour its commitments to current Fellows but will not offer any new awards.

Since 2000, 112 Teaching Fellows have been appointed at a total cost of £1,166,917:

Figure 6: Newton Trust Teaching Fellowships 2000-2018:



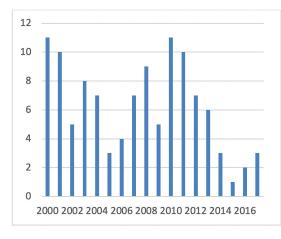
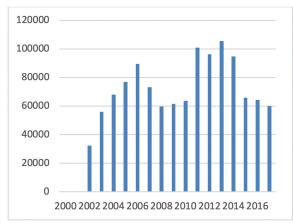


Figure 6b: cost of new awards



The Newton Trust Teaching Fellows in post during 2017-18 were:

College	Fellow	Department	Start	End
Robinson	Dr Gary Doherty	Oncology	Oct 13	Sep 17
Girton	Dr Helen Yannakoudakis	Computer Laboratory	Oct 14	Sep 18
Queens'	Dr José Maria Escartin Esteban	Physics	Oct 15	Sep 19
Fitzwilliam	Dr Fiona Danks	Geography/Scott Polar	Oct 16	Sep 21
Fitzwilliam	Dr Deepak Venkateshvaran	Physics	Oct 16	Sep 20
Fitzwilliam	Mr Marco Geraci	Economics	Oct 17	Sep 21
Fitzwilliam	Dr Carla Mulas	Stem Cell Institute	Oct 17	Sep 21
Lucy Cavendish	Dr Amber Ruigrok*	Psychiatry	Oct 17	July 18

^{*}renewal possible subject to continued university employment contract

College Teaching Officers (CTO posts)

This programme was closed in 2011 and no new appointments have been made since. The Trust's expenditure could potentially continue to September 2019, if eligible posts are renewed.

Four posts remained current in 2017-18:

College	СТО	Department	Start	End
Churchill	Dr Paul Russell	Mathematics	Oct 08	Sep 17
Homerton	Dr Simon Wadsley	Mathematics	Oct 08	Sep 18
Homerton	Dr Olivier Tonneau	Modern & Medieval Languages	Oct 09	Sep 17
Queens'	Dr Andrew Thompson	History	Oct 11	Sep 19

College Teaching Officer Research Leave (CTORL)

The Trust launched this programme in 2013-14 to encourage high-quality research among College Teaching Officers (CTOs) who may not enjoy the same sabbatical entitlement and support as University Teaching Officers.

The Trust provides grants to Colleges to make full-time short-term junior teaching appointments of 9 to 12 months' duration, to release an established CTO to take an extended period of leave for a significant research project. The Trustees have agreed to make up to five awards of up to £30,000 each year.

The programme is open to CTOs from all Colleges, and has the approval of the inter-College committees. There is one application round per year, in January or February.

A fifth cohort of appointments was made at a cost of £85,000 (£105,000 in 2016-17, £75,000 in 2015-16), to be held in 2018-19 as follows:

College	СТО	Faculty/Department	Duration of award
Peterhouse	Mr Scott Mandelbrote	History	12 months
Murray Edwards	Dr Evaleila Pesaran	POLIS	9 months
Selwyn	Dr Charlotte Woodford	German	12 months

STUDENT AWARDS

The Trust has maintained a long-term commitment to providing competitive research scholarships to the best of the UK and EU students, many of whom have been unable to secure funding from public sources such as the Research Councils. The Trust does not itself award these scholarships, but directs funding through existing University competitions. The Trust does not provide salary or research costs for students other than through these established major funding programmes.

The Trustees seek to achieve the most appropriate level and type of support by reviewing their contribution at regular intervals against a background of frequent changes in the Research Councils' policy.

PhD Studentship Programmes

In 2012, the Trustees agreed to support six 3-year PhD studentships per year for the duration of the AHRC DTP award 2014-19. The cost to the Trust in 2017-18 was £208,079 (£188,020 in 2016-17; £127,181 in 2015-16; £51,515 in 2014-15).

The Trustees noted that the University of Cambridge would be submitting a bid for 'AHRC DTP2' to commence in 2019, as part of a consortium with Oxford University, the Open University and three non-HEI partners (BBC World Service, British Telecom and the National Trust) and agreed to consider an application for a renewed contribution should the new bid be successful

Newton Trust/College MPhil bursaries

The Trust offers bursaries for UK students taking one-year MPhil courses as preparation for a doctoral degree. These awards are held in certain Colleges that had agreed to match the Trust's contribution of £6,000 per student; Colleges of lesser wealth offering two such studentships are eligible for a further bursary entirely funded by the Trust (ie £12,000).

The competition is run by the Student Registry and the selections are made by academic panels representing different subject areas.

This year, the number of bursaries awarded by the University panels, the cost to the Trust, and the number of Colleges participating were all lower after three years of growth:

For awards to be held in:	2018-19	2017-18	2016-17	2015-16	2014-15
Colleges participating	27	28	26	25	19
Number of Bursaries awarded	59	73	66	57	38
Cost to the Trust	£402,000	£504,000	£444,000	£402,000	£204,000

The distribution of awards among subject areas has also changed this year, with fewer awards in the Arts, Humanities and Social Sciences and more in Physical Sciences and Technology:

Schools	Bursaries for 2018-19 (compared to 2017)	Cost to INT (to fall in 2018-019)	
Arts, Humanities & Social Sciences	37 (57)	£246k	
Physical Sciences & Technology	15 (9)	£96k	
Biological Sciences & Clinical Medicine	7 (7)	£60k	
All Schools	59 (73)	£402,000	

Having paid for the 2018-19 cohort, approximately £300k will remain in the fund and this will be made available in full for 2019-20 as a final contribution to the programme.

Careers Service Internships

The Trust provides £10,000 per annum as a contribution to the Careers Service's fund to enable current Cambridge students to undertake summer internships in International Development work, UK-based charities and 'not for profit' organisations. Without this funding, many students would not be able to gain invaluable work experience, which is increasingly a pre-requisite to securing a role in their chosen sector after graduation.

Students in receipt of Student Bursaries are prioritised in the selection process: in 2017-18, 156 students applied for an internship bursary, 47 of whom were in receipt of a Student Bursary, and, of these, 32 received an award.

What our interns have said:

'Not only have I been able to make a difference and actually see the impact of my work, but also, in terms of personal development, I cannot think of any other internship that would have made me grow as a person.' [10 weeks in Kenya and Uganda with the NGO Education Partnerships Africa organisation, teaching health and hygiene]

'I am so grateful to have had such a rich experience of international politics and diplomacy so soon and am keen to stay within the field of human rights.' [6 weeks with the Office of the High Commissioner for Human Rights in Geneva]

"...an incredible opportunity to develop my professional and personal skills. I was able to get a real insight into many aspects of working for a small charity including strategy, fundraising and project management." [7 weeks with Cambridge United Community Trust]

FINANCIAL SUMMARIES

Audited accounts: headline figures and forward planning

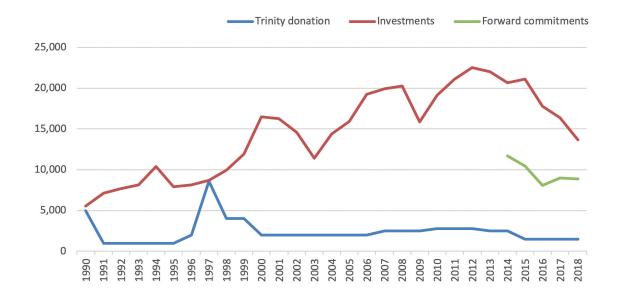
	2017-18	2016-17	2015-16	2014-15	
Opening balance	£8,696,489	£10,317,258	£11,606,463	£11,214,894	
Income	£2,046,986	£2,036,687	£2,159,553	£6,853,103	
Expenditure	£4,659,115	£5,734,898	£3,275,840	£7,743,667	
Gain (Loss) on investments	£783,659	£2,077,442	(£172,918)	£5,449	
Closing balance	£6,868,019	£8,696,489	£10,317,258	£11,606,463	

The audited accounts for the year ended 30 June 2018 are presented in detail on our website at https://www.newtontrust.cam.ac.uk/about/Accounts

The excess of expenditure over income was £2.6m in 2017-18, compared to £3.7m in 2016-17. This reflects the Trustees' strategic mobilisation of a portion of the reserves in support of more substantial, long-term projects (see page X). Last year, this excess was mitigated by exceptional return on investments. However, gains on investments were somewhat lower this year, so the closing balance at the end of June 2018 is down by £1.8m compared to the year end 2016-17.

Fig. 7 shows the relationship between the Trust's total reserves and income from Trinity College since the foundation of the Trust. The reserves required to cover forward commitments (in green) are also shown from the inception of forward commitment accounting. At the current rate of expenditure, the red and green lines will converge, and reach the level the Trustees would wish to retain, in 2018-19, leaving a reserve of £1-2m uncommitted funds over the sum required to meet forward commitments. The Trustees will continue to keep their strategy of drawing down the reserves under review.

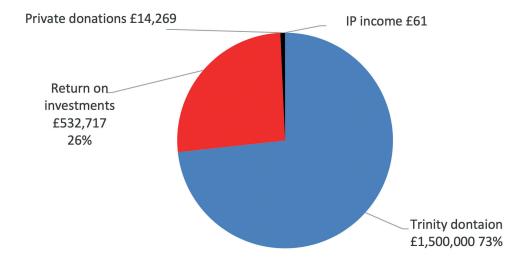
Figure 7: INT investments, forward commitments & Trinity donations 1989-2018



Income and expenditure 2017-18

Total income in 2017-18 was **£2.05m** (£2.04m in 2016-17; £2.16m in 2015-16).

Figure 8: Income 2017-18



The donation to the Trust from Trinity in 2017-18 was £1,500,000, the same as in the previous two years; the College Council reviews its donations annually.

Our investments provided income of £532,717 (£524k in 2016-17, £640k in 2015-16).

Private donations to the Trust, channelled mostly through Trinity College, amounted to approximately **£14,270** including Gift Aid.

The first income from shares in intellectual property arising from grants made by the Trust was received in 2017-18; this amounted to **£61** from one grant for one quarter of the year. Three other agreements are in place but have yet to generate any returns. Any such income will be ploughed back into our research funding activities. Trustees approved a new form of agreement with Cambridge Enterprise to bring up to date the original arrangement (adopted in 2002) for the exploitation of IP partially funded by the Trust.

Expenditure: New commitments made in 2017-18

New commitments to research grants and fellowships in all categories amounted to £4.9m (£6.1m in 2016-17, £2.5m in 2015-16) during 2017-18, and a further £0.3m was committed to continuing the MPhil Bursaries beyond the 2018-19 cohort.

Forward commitments and write-backs

At the end of the year, the Trust had total forward commitments of **£8.9m**, allowing for any write-backs notified by the end of August 2018.

Assets and uncommitted funds

There was a gain on the revaluation of the investment assets of **£0.8m** (compared to a gain of £2m in 2016-17 and an unrealised loss of c.£0.2m in 2015-16). The net result is a further decrease of £1.8m in uncommitted funds carried forward, to **£6.9m** (£8.7m in 2016-17; £10.3m in 2015-16).

On the advice of the Investments Sub-Committee, the Trust's holdings in the Barings Targeted Return Fund had been drawn down gradually over the past few years (£1.6m in 2016-17, £7.6m in 2015-16, £11.1m in 2014-15) in favour of the higher returns available through the Cambridge University Endowment Fund (CUEF). During the course of the year, the transfer of funds remaining in the Barings Funds to CUEF was completed: £1,357,248 was disinvested from our Barings Bursaries account and £4,902 from our Barings General account and transferred to CUEF; both Barings accounts have now been closed.

While our Barings funds were relatively liquid, funds can be redeemed from CUEF only on quarterly dates (1 Jan, 1 April, 1 July and 1 Oct), for which six months' notice is required. At our current rate of expenditure, between £3.5m and £4m need to be disinvested annually from CUEF to cover our funding commitments. Notice had therefore been given for major divestment from CUEF: the first tranche, of £2m, is being drawn from CUEF on 1 July 2018.

At the end of the year, CUEF managed £13.6m (£14.8m in 2016-17, £10.2m in 2015-16, £10.0m in 2014-15).

Clearly, we need to retain enough to cover our commitments and, assuming no significant change to annual income and expenditure in the near future, our current reserves would be drawn down to this level within two years (see Fig. 7). The Trustees are, however, also keen to retain a reserve (of perhaps £2m above the minimum) to allow for occasional one-off projects for which a substantial contribution on our part might unlock a major strategic opportunity for the University. Having the financial flexibility to act in this way is a valued aspect of the Trust's independence.

Given the Trustees' preference to help the University to launch new ventures, it will be inevitable that they wish to keep a sharp eye on our ongoing commitments. It is the Trust's policy to limit funding commitments to individual projects to 5 years, and Trustees have agreed that all of our major programmes should not be assumed to continue indefinitely, but should be reviewed after five years. By that stage, we would hope that programmes would be firmly up-and-running and alternative sources of funding applied for. In some cases, discussion with the University will be necessary to pave the way for a possible transition away from INT support. The MPhil Bursary programme is a case in point: the Trust has provided matched funding for the Colleges for more than five years and has now given notice to the University that this support will cease on the extinction of our ring-fenced Bursary Fund within the next two years.

During the year, Barclays plc split off its commercial business from domestic holdings by creating two new entities. The Isaac Newton Trust, by virtue of its modest turnover (less than £6.5m) and its domestic focus, will fall within the new ring-fenced entity Barclays UK.

Payments – unrestricted funds

The Statutory Accounts deal principally with new commitments; from the point of view of cash management, however, it is also useful to review the actual payments made during the financial year and their distribution across the Trust's various funding activities.

The Trust paid grants to a total of £4.4m for research and teaching activities in 2017-18 (£4.1m in 2016-17, £4.2m in 2015-16).

The Trust's own Research Grants together with three research grant programmes co-funded by the Schools of the University, accounted for approximately 68% (63% in 2016-17, 50% in 2015-16) of the research payments. Matched funding for Early Career Fellowships accounted for a further 25% (26% in 2016-17, 20% in 2015-16) (Fig. 9).

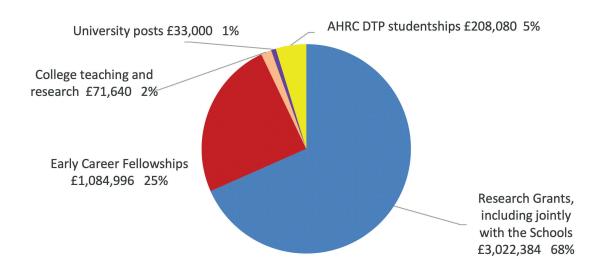


Figure 9: Research Payments 2017-18: unrestricted funds

Research spending by subject area.

There was a significant change this year in the proportion of the Trust's award to different subject areas: these differences are largely explained by the projects selected this year for major Strategic Grants:

Awards to departments, faculties and individual researchers in the Schools of the **Arts & Humanities and Humanities & Social Sciences** ('AHSS', green shades) accounted for 35% of the Trust's new commitments to research support in 2017-18 (compared to 49% in 2016-17) (compare Figures 10a and 10b). Awards in the **Schools of Physical Sciences and Technology** ('PSTech', blue shades) amounted to 20% of the total (31% in 2016-17), while the main beneficiaries this year were the **Schools of Biological Sciences and Clinical Medicine** ('BioMed', red shades) which received 42% (20% in 2016-17).

If research student grants in 2017-2018 are added into these figures, the share of research funds for the Arts, Humanities and Social Sciences rises to 40%.

In the following diagrams, the data include new awards made in 2017-18 and 2016-17 in all categories with the exception of the Joint Schools awards, for which the year's actual expenditure has been used. The category *Fellows* includes Leverhulme and Humboldt Early Career Fellowships plus College Junior Research Fellowships.

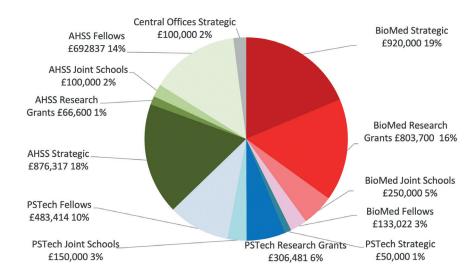
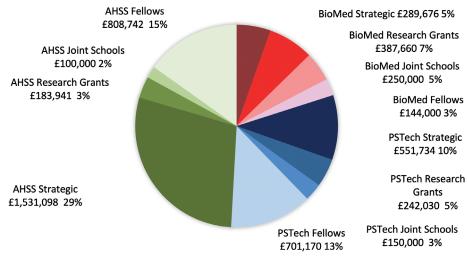


Figure 10a: Research expenditure 2017-18: by category, by subject area

Figure 10b: Research Expenditure 2016-17 for comparison



Payments – restricted funds

The Trust's financial contribution to the Cambridge Bursaries Scheme ended with the 2015-16 financial year. Isaac Newton Trust / College MPhil bursaries accounted for approximately £504k in 2017-18 (£444k in 2016-17, £402k in 2015-16). A further £402,000 will be paid out in 2018-19 for new bursary commitments in 2017-18. Careers Internship bursaries continued for a further year at a cost of £10k.

Payments - administrative costs

Expenditure	2017-18	2016-17	2015-16	2014-15	2013-14
staff salaries, pensions, NI	£92,379	£80,960	£148,550	£122,591	£153,694
rent, services and miscellaneous	£31,199	£14,538	£30,041	£19,302	£17,728
governance (audit, accounts)	£14,590	£12,120	£11,880	£6,000	£2,304
Total support costs	£138,168	£107,618	£190,471	£147,921	£173,726



Dr Noa Zilberman (Computer Laboratory) uses a traffic junction analogy in her five-minute presentation to Trustees and Fellows on 'systems for big data applications: revolutionizing personal computing'



Trustee Professor Jeremy Baumberg (on right) networking with Fellows in the newly-completed courtyard at the Postdoc Centre, Eddington.



Photo credits: Jennifer Hayward (Office of Postdoctoral Affiars)



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