THE ALEXANDER VON HUMBOLDT FOUNDATION: OUTCOMES OF SUPPORT FOR AUSTRALIAN SCIENCE AND SCHOLARSHIP

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ABSTRACT: Some of the funding opportunities through the Alexander von Humboldt Foundation (AvHF), which are available to international researchers within any field of scholarship to enable them to pursue their research at any one of many German universities and other research institutes, are reviewed. Recent statistical data for research funding by the AvHF, with a particular focus on funding for Australian researchers, are outlined. These data clearly demonstrate the considerable success that has been afforded to Australian science and scholarship as a result of AvHF funding, by comparison with that from other research funding schemes. Some specific personal examples are discussed in order to illustrate the significant influence that funding from the Alexander von Humboldt Foundation has had on Australian science and scholarship and the careers of many Australian researchers.

Keywords: Alexander von Humboldt Foundation, research funding, Australian Humboldtians

Among the 45 abstracts of papers presented at the Australian Association of von Humboldt Fellows (AAvHF) – Royal Society of Victoria (RSV) Symposium other than my own, the name Humboldt is mentioned in five of them, although in none of these five has the contribution of Alexander von Humboldt been summarised. Humboldt was a discoverer and cosmopolitan, a universal scholar and fighter for the freedom of research, a humanist and patron of excellent research talents. His major journey of exploration (1799–1804) took him and his French colleague, Aimé Bopland, to the northern regions of South America, to Central America and to the colonies of what is now the United States of America (Beck & Schoenvald 1999).

As early as 1860, funding under the name of Alexander von Humboldt was awarded to ‘emerging talent’ in academic research. The scheme was suspended in 1923 on account of the economic depression but in 1925 the formal Alexander von Humboldt Foundation (AvHF) was formed by the German Foreign Ministry. This scheme was suspended during World War II (1940–1945). The AvHF, as it is known today, was established in 1953 by the Federal Republic of Germany (AvHF 1993). In the spirit of Humboldt, it fosters an international network of scientific cooperation and trust.

THE ALEXANDER VON HUMBOLDT FOUNDATION

The AvHF is active in various fields:
• It supports international academics as part of foreign cultural and educational policy.
• It strengthens cutting-edge research through internationalisation.
• It enables individuals, who provide an impetus for the research location Germany, to spend time researching there.
• It promotes development by sponsoring cooperation with researchers from emerging and developing countries.
• It provides mobility counselling for researchers from abroad in the context of its European activities, even if they are not Humboldtians.

The various support programs available through the AvHF enable outstanding researchers from Germany and abroad to undertake scholarly research. Sponsorship decisions are based on the applicant’s achievements and qualifications to date. There are no quotas either for countries or disciplines. The AvHF believes that even in times of increasing teamwork, the ability of the individual is the crucial factor for academic success. This is why it sponsors people not projects. Those chosen on this basis should be given as much freedom as possible to carry out their research projects. This includes allowing foreign research awardees coming to Germany to choose their host institutions themselves, from among the multitude of German research institutions, including universities and research institutes, without any stipulations from the AvHF. Likewise, German researchers within AvHF programs are free to choose their research location overseas, provided they are hosted by a Humboldtian within that institution.
AvHF funding

The AvHF’s funding comes largely from the German Federal Government. For example, the budget for 2013 (Figure 1) was 110.0 million EUR of which 96% was financed by federal funds. Of the total budget, 54.0% was financed by the Federal Ministry of Education and Research, 34.7% by the Federal Foreign Office, 5.7% by the Federal Ministry for Economic Cooperation and Development and 1.3% by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety. Only 0.4% came from the Investment and Redemption Funds. The remaining 3.9% was provided by third parties and income from the Foundation’s assets (AvHF 2013).

There is a broad spectrum of AvHF sponsorship programs available to Australian researchers, ranging from postdoctoral research fellowships to the very prestigious Alexander von Humboldt Professorship. The AvHF supports researchers at different stages of their research careers, both for researchers from abroad wishing to conduct research in Germany and for German researchers to go abroad, with the latter supported by the Feodor-Lynen schemes and Max Planck Awards.

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Figure 1: Budget of the Alexander von Humboldt Foundation for the 2013 financial year, showing the relative sources of the total budget from the various (mainly German Federal Government) sources (data from AvHF 2013).

Fellowships and awards available to Australian researchers

The Humboldt Research Fellowship for Postdoctoral Researchers enables highly qualified scientists and scholars from abroad who completed their doctorates less than four years ago and who are just embarking on their academic careers to spend extended periods (6–24 months) working on research in Germany. The Humboldt Research Fellowship for Experienced Researchers enables highly qualified scientists and scholars from abroad who completed their doctorates less than twelve years ago to spend extended periods (6–18 months which may be divided up into a maximum of three blocks) working on research in Germany.

The requirements for a Humboldt research fellowship are an above-average doctorate or comparable academic qualification; independent research experience, documented by recognised, academic publications, preferably in international journals; adequate language skills; a research project agreed upon with the academic host; and confirmation from the host institute that research facilities are available. Possible host institutes include any one of more than 100 universities that are strong in research and numerous research institutes throughout Germany. These include Max Planck Institutes and institutes under the Fraunhofer Gesellschaft, the Hermann von Helmholtz Association and the Leibnitz Association.

As a rule, candidates’ chances are increased if they belong to the top group among their international peers. The number of publications considered appropriate varies according to discipline and career stage. What determines whether an application is successful is academic quality, not German language skills. In science, in particular, research groups function and publish in English. In this case, it is not necessary to have a proven knowledge of German at the time of application. At the time of application, candidates from the humanities and social sciences, on the other hand, should have a basic knowledge of German, which may be necessary to conduct their project successfully.

Experienced researchers should have their own, clearly defined academic profile. This means they should usually be working at least at the level of assistant professor or junior research group leader or be able to document independent research work over a number of years and a comprehensive list of academic publications with a recognisable, independent profile.

The AvHF grants up to 100 Humboldt Research Awards annually to internationally eminent academics from abroad in recognition of their entire academic record to date. The award winners are also invited to undertake research projects of their own choice in Germany, in cooperation with colleagues from their discipline, for a period of approximately six to twelve months (which can be divided up into shorter periods of time). The Humboldt Research Award is valued at 60,000 EUR. The initiative to grant a Humboldt Research Award (nomination) must be taken by established academics who are working at universities or other research institutions in Germany. Self-nomination is not possible. Academics can be nominated for an award if their fundamental discoveries, new theories or insights have had a significant impact on their disciplines beyond their own particular field of research and if they are expected to continue producing cutting-edge, academic achievements in the future.
Equal opportunity for female academics is an important issue for the AvHF. As the AvHF’s sponsorship programs target both men and women, it consequently seeks to make its sponsorship programs equally attractive to both male and female academics. For this reason, all sponsorship options are supplemented with the following equal-opportunity measures:

- Research fellows have the opportunity to extend the sponsorship period by up to three months if they give birth during the approved sponsorship period and this opportunity to extend the sponsorship period is available even if the fellowship finishes within the statutory maternity leave period.
- The research fellow can apply to interrupt the fellowship period for up to 18 months if the birth of a child occurs within the sponsorship period or if the research fellow (male or female) is responsible for the care of a child under 12 years of age; and
- Married research fellows receive a marital allowance if the accompanying spouse does not have any income of his/her own. If the fellow’s underage children (under 18) accompany him/her to Germany for at least three months (without interruption) an application can be made during the sponsorship period to receive a child allowance or child benefit according to German law. Comparably, a childcare allowance can be paid for children of fellows from Germany who accompany them abroad and who are not older than 12 years.

In addition, the AvHF offers information specifically for female academics in the context of its role as a German partner in the European Union-wide Euraxess Network. The internet portal, www.euraxess.de, offers information on:

- sponsorship programs for female academics
- advice, training, platforms and networks
- dual career couples.

Nevertheless, it is evident that the number of female academics sponsored each year is significantly lower than that for their male colleagues and drops with a higher career stage and with increasing age. For example, Figure 2 shows the statistical data for Alexander von Humboldt fellowships awarded for the period 2009 to 2013, with only approximately 30% of the fellowships awarded in this period going to female applicants. Specifically for fellowships and awards to Australian applicants, the available statistical data (Figure 3) also reflect this global dominance of male over female applications and approvals.

**Application procedure**

Applications may be submitted to the AvHF at any time. Application forms can be downloaded from the internet (AvHF 2014: 2). Usually, two independent expert opinions will be requested for each application. The decision is made by an independent selection committee comprising academics from all disciplines. They evaluate the applications submitted without any quotas for countries or disciplines. The selection committee meets three times a year. The procedure takes a total of four to seven months from submission to notification of the committee’s decision immediately after the committee meeting.

**Successful applications globally**

Research fellowships represent the major component among all AvHF support programs so these are used to illustrate the distribution of successful awards among global regions (Figure 2). The majority of these fellowships awarded for the same period, represented by the data in Figure 2 (2009–2013), were in the Natural Sciences (63%), followed by the Humanities and Social Sciences (27%) and the Engineering Sciences (10%) (AvHF 2014: 3). From
Figure 2, it is clear, as is to be expected, that the percentage of fellowships awarded to applicants from the global region of which Australia is a part is small, by comparison with that for Asia, for example (details for Australian applications will be discussed subsequently). Although the discipline percentages above indicate a predominance of fellowships within the Natural Sciences – not a surprising result, given the nature of academic research, globally and in the Federal Republic of Germany – it is emphasised that the AvHF has no quotas for disciplines but selects candidates solely on the basis of the academic quality of the applications. Thus, the AvHF welcomes excellent applications from all disciplines equally.

APPLICATIONS INVOLVING AUSTRALIANS

While, as mentioned above, the fraction of the AvHF sponsorship for applications from the global region of which Australia is a part (Figure 2) is small, it is nevertheless of interest to examine the statistical data for fellowship applications and award nominations involving Australians. During the life of the AvHF to January, 2014, there have been 508 Australian Humboldtians (awardees, fellows and Lynen fellows), (AvHF 2014: 2) with this number dominated by researchers in the Natural Sciences (77%), followed by the Humanities and Social Sciences (14.8%) and the Engineering Sciences (8.2%). Significantly, only 79 (or 15.6%) of this total number have been females (C. Khazarian, personal communication, 2013). The majority of all successful applicants/nominees for fellowships/ Humboldt awards together with the locations to which successful Lynen applicants have gone in Australia have involved research in the Australian university sector (Figure 4). However, it should be pointed out that, while all successful Humboldt awardees and fellows have not necessarily returned to their original research institution on completion of their research stay in Germany, it would be correct to argue that Australian science and scholarship has benefited considerably from this AvHF sponsorship.

Australian success rates

Figure 5 contains both the number of Australian applications/nominations for Humboldt and Lynen fellowships and awards and their approval rates by the relevant AvHF selection committee for the six-year period 2009–2014. Note that the average success rate for Humboldt research fellowships of 39% over this six-year period, with a range of 26%<RF<46%, is considerably higher than that for Australian Research Council (ARC) Discovery Grants over the same period, several of which would have involved funding for post-doctoral fellowships (21.4% average and range 19.9%<D<22.7%) (ARC 2014). Also for comparison, one should note the Discovery Early Career Researcher Award (DECRA) Fellowships within the ARC scheme, introduced in 2012 and their success rate of, on average, 34.8% and range 31.5%<DECRA<38.5% for the three-year period 2012–2014 (ARC 2014). For Lynen fellowships this success rate is much the same, 39% (20%<LF<63%) and for Humboldt awards, 43% (14%<HA<57%). It is of interest to compare these success rate figures for Australia with those recorded globally during this period. For example, for Humboldt fellowships globally the average success rate for the period 2009–2013 was 31% with a range of 25.2%<HFG<37.1% (AvHF 2014: 3). While it must be emphasised that the total numbers of Australian applications are small by comparison with those globally, it is nevertheless significant that the success rates are slightly higher.
Specifically in relation to applications/nominations involving females, Figure 3 shows that, on average over the last six-year period, there have been fewer than half the number of applications from females by comparison with those from males, and the former have had slightly lower success rates, on average ~33% over this six-year period for females with the range 10%<F<50%, by comparison with ~44% for males and a range of 33%<M<58%. It is interesting to note that for Humboldt awards there has been only one nomination of a female from Australia during this six-year period and this nomination was approved by the AvHF.

THE HUMBOLDT NETWORK

From the very beginning, the motto ‘Once a Humboldtian – always a Humboldtian’ has been the hallmark of the AvHF. Humboldt sponsorship is enduring and the AvHF is a lifetime partner, maintaining connections on a long-term basis through its alumni sponsorship programs. As a result, an active knowledge network of more than 26,000 Humboldtians has been laid across the whole academic world – embracing some 134 countries. The alumni sponsorship measures provide flexible support for the individual life paths and development of Humboldtians. Moreover, the AvHF encourages its alumni to undertake their own initiatives and collaborations across disciplinary and national borders. Networking sponsorship caters for the chance to revitalise relationships with specialist colleagues and their institutes or to make contacts with new partners, continue joint projects already underway, or build new collaborations.

The AvHF, itself, regularly organises colloquia abroad to which it invites research fellows and research award winners living in the host country or region, as well as Feodor Lynen fellows working there. In 2013 only one such Humboldt Colloquium was conducted. Entitled ‘Looking to the Future: International Research in a Changing World’, it was held in Sydney, NSW, from 17 to 19 October.

Since 2002, the AvHF has provided financial support for Humboldt Alumni Associations as well as for individual Humboldtians to organise regional and specialist conferences. These Humboldt Kollegs have become one of the most popular instruments for strengthening regional and specialist networks. Apart from networking, the Kollegs serve to awaken the interest of young academies in the AvHF’s programs and in Germany as a location for research.

The AvHF’s Humboldt Alumni Awards for innovative networking initiatives are granted to fellows and award winners abroad. Each award is valued at up to 25,000 EUR, and three awards are granted annually. They are designed to support projects not covered by the AvHF’s existing sponsorship and alumni programs and to promote academic and cultural relations between Germany and the Humboldt alumni’s own country, as well as strengthening collaborations in the respective region.

Australian Association of von Humboldt Fellows

During the 1980s, the AvHF encouraged the formation of regional associations of Humboldtians. In Australia, the Australian Association of von Humboldt Fellows (AAvHF) was formally established in 1983 with encouragement from the AvHF in Bonn (AAvHF 2014), after a period of consideration of such an association following an initial meeting of Australian fellows held in Sydney in 1973 (Harmstorf & Schwerdtfeger 1988). While to date there are 508 Australian Humboldtians (mostly fellows) (Figure 3), only about 170 of these have chosen to be members of the Australian association. Membership is offered free to a returning fellow, awardee or resident Lynen fellow for the first two years after which there is a small fee for ongoing membership. The main activity of the AAvHF is its national scholarly Biennial Meeting at which fellows are invited to present their recent research. Often this will be collaborative research with their German colleague/s but it need not be. The most recent Biennial Meeting (the 14th), entitled ‘Preserving the Humboldt Tradition of Scholarship in Australasia’, and involving both the AAvHF and the New Zealand Association, was held at the NeuroScience Research Institute, Randwick, NSW, from 30 September to 2 October, 2011. It was attended by around 50 fellows (and some of their partners). The papers submitted were published by the association in a special volume, following peer-review (Finlayson 2012). The Humboldt Colloquium which was held in Sydney in 2013 (as mentioned above), replaced the regular AAvHF Biennial Meeting for 2013 but the 2015 meeting is already being planned and will be held at the University of Tasmania, Hobart, during November 2015.

Presenting a paper to an AAvHF Biennial Meeting is a difficult task since one is not presenting to one’s own discipline colleagues, as occurs at discipline conferences, but, for example, a physicist could find him/herself presenting to historians, lawyers, physicists, geologists, philosophers, and so on, in ‘the true spirit of Alexander von Humboldt’ and of the AvHF itself. The challenge is to have your presentation understood by fellows from all disciplines!
SOME SIGNIFICANT AUSTRALIAN HUMBOLDTIANS

There are many examples of important scholarly research outputs by Australian Humboldtians which I could cite in order to illustrate this particular aim of the paper. But with the space limitations, I have selected just four examples and have briefly summarised their respective contributions to Australian scholarship.

Professor Peter Schwerdtfeger (1935–2013)

Professor Peter Schwerdtfeger was Professor of Meteorology at Flinders University (1971–1999) (the first such chair in Australia). He became the foundation President of the AAVHF in 1983 and continued in that role until 2009. He had a long and distinguished career in Australian science, and was co-founder in 1999 of and a senior advisor to Airborne Research Australia. He was also the founding Director of the Flinders Institute for Atmospheric and Marine Sciences and was Chairman of the Country Fire Services Board of South Australia (1977–1984). Peter was a member of the Australian Bureau of Meteorology Advisory Board (2002–2006) and of the Antarctic Science Advisory Committee (2003–2009), and was elected Fellow of the Australian Academy of Technological Sciences and Engineering in 1988.

He was awarded an Alexander von Humboldt Fellowship for research at the University of Cologne in 1965, the Max Planck Research prize in 1991 for work at the University of Bonn and an Australian Centenary Medal in 2001, for the success of introduced dung beetles in Australia; Emeritus Fellow, Entomology, CSIRO, 2006; Australian Geographic Conservationist of the Year, 2008; and Distinguished Member of the AAVHF, 2011. Of the numerous species of dung and other beetles which Dr Bornemissza discovered, two of his favourites were Scarabaeus bornemisszai and Sisyphus bornemisszamus.

Professor Aidan P. Byrne (1958–)

Professor Aidan Byrne is the Chief Executive Officer of the Australian Research Council (ARC), having been appointed in July 2012. Professor Byrne is a welcomed force at the ARC in seeking to deliver its key priorities and deliverables.

Prior to Professor Byrne’s current position with the ARC, he had been Dean of Science and Director of the Australian National University (ANU) College of Physical and Mathematical Sciences. He has a wealth of industry knowledge and expertise, particularly in the physical and mathematical sciences and engineering.

Professor Byrne holds a PhD in Nuclear Physics from the ANU, following which he held positions at the University of Melbourne, and from August 1986 until December 1988 he carried out research as an Alexander von Humboldt Fellow at the Institut für Strahlen und Kernphysik, University of Bonn. He returned to the ANU in 1989 as a research fellow and in 1991 commenced a joint appointment between the Department of Physics, Faculty of Science, and the Department of Nuclear Physics, Research School of Physical Sciences and Engineering. He was Head of the Department of Physics from 2003 to 2007.

His research interests involve the use of gamma-rays as probes to determine the structure of heavy nuclei and as dung beetles for the benefit of the pastoral industry. Dr Bornemissza embarked on his 20-year-long project with the CSIRO, successfully importing about 50 species of bovine dung beetles from Africa and Mediterranean Europe, coincidentally reducing bush fly numbers. Following his retirement, he created his magnum opus, ‘Forest Beauties of the Beetle World: A Tribute to Biodiversity and an Appeal for its Preservation’, one of the most comprehensive and spectacularly mounted displays of beetles anywhere in the world. Dr Bornemissza donated his displays to the Tasmanian Museum and Art Gallery, the most recent addition of 1037 specimens from the Neotropic region having occurred in June 2011.

Dr Bornemissza’s awards include: his Alexander von Humboldt Fellowship (Munich), 1960–1961; Britannica Award, 1973, for his application of ecology for human benefit; Rolex Award for Enterprise, 1982; Order of Australia Medal (OAM), 2001, for the success of introduced dung beetles in Australia; Emeritus Fellow, Entomology, CSIRO, 2006; Australian Geographic Conservationist of the Year, 2008; and Distinguished Member of the AAVHF, 2011. Of the numerous species of dung and other beetles which Dr Bornemissza discovered, two of his favourites were Scarabaeus bornemisszai and Sisyphus bornemisszamus.

Dr George F. Bornemissza OAM (1924–2014)

Dr George Bornemissza began his study of beetles as a teenager in Baja, Hungary. Research in Budapest towards his PhD was interrupted in 1946 by the Soviet invasion and Communist takeover of his country, as a result of which he fled to Austria, completing his doctorate in Innsbruck. He then migrated to Australia, arriving on 31 December 1950, and was determined to make a difference, to do something new and big in his land of choice.

This aspiration was realised in providing bovine
probes in the examination of the atomic-level structure of materials (especially semiconductors).

**Professor Alexandra Y. Aikhenvald (1957–)**

Mention was made above that there has been only one nomination of an Australian female for a Humboldt award during the six-year period 2009–2014 and that this nomination was approved by the AvHF. This award was to Professor Alexandra Aikhenvald who is at James Cook University (JCU), being the Research Leader, Peoples and Societies of the Tropics at the Cairns Institute of the University.

Professor Alexandra Aikhenvald has been fascinated by languages since early childhood. Following a classical education involving Latin, German, Spanish and French, together with her native Russian, she subsequently mastered Anatolian languages, Sanskrit, Akkadian, Lithuanian, Finnish, Hungarian, Italian, Ancient Greek, Estonian, Hebrew and Yiddish. She also speaks Tok Pisin and has written a grammar of the East Sepik language of Manambu.

From 1989 to 1992, Professor Aikhenvald did research work in Brazil, where she mastered Portuguese and five Brazilian Indian languages, and wrote a grammar of Tariana. In 1993 she moved to Australia, subsequently holding positions at the ANU and La Trobe University, prior to joining JCU. In 1996, with the expert on Australian aboriginal languages Professor R.M.W. (Bob) Dixon, she established the Research Centre for Linguistic Typology at the ANU, which was relocated to La Trobe University in 2000. Then in 2009 Professors Aikhenvald and Dixon founded The Language and Culture Research Group at JCU.

Professor Aikhenvald was awarded a Centenary Medal for service to Australian society and the humanities and philology in 2003 and her Humboldt award at the University of Cologne in 2010.

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