

# “HOW EXCELLENT... FOR A WOMAN”? THE FELLOWSHIP PROGRAMME OF THE INTERNATIONAL FEDERATION OF UNIVERSITY WOMEN IN THE INTERWAR PERIOD

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## ABSTRACT

*Funding bodies and their fellowship programmes became a cornerstone of the scientific world in the twentieth century, not only providing scholars with the means to conduct their research in practice, but also decisively influencing the perception of their scientific persona as an expression of their expertise. Although women were increasingly entering the scientific realm at the time, few succeeded in obtaining such fellowships. In this article, I shall take a closer look at the fellowship programme of the International Federation of University Women during the interwar period, which was specifically designed to enable women to continue their research abroad. By focussing in particular on the selection process, as evidenced by the minutes of committee meetings and the fellows' files, I shall explore the implicit norms and expectations to which candidates were subject in order to reconstruct the ideal type of woman scientist. The fellowship programme was meant to function as a meritocratic and excellence-oriented system, in which personal and non-scientific characteristics did not serve as criteria in the allocation of funding. Deliberately understating aspects of gender and developing a strictly meritocratic discourse, the Federation promoted a “disembodied” type of scientific persona as a strategy aimed at overcoming a long-standing bias against the alleged amateurism of women scientists. Whereas other funding bodies such as the Rockefeller Foundation contributed to the shape of a masculine persona, the IFUW sought to promote a universal model, in which women could be recognised as legitimate scientists.*

## KEY WORDS

Scientific Persona; Gender; Fellowship Program; Women Scientists; Internationalisation; Interwar Period

## INTRODUCTION

In 1926, hundreds of women holding a university degree gathered in Amsterdam on the occasion of the 4<sup>th</sup> international conference of the International Federation of University Women (IFUW). The main aim of this congress was to reflect upon the “practical problems for university women”. In her opening speech, Virginia Gildersleeve, dean of Barnard College in New York and one of the founders of the IFUW, addressed her audience thus:

The greatest need of the university and professional women of the world at this moment is that they should achieve work of absolutely first rate quality – of distinction; work for which no apologies or explanations are necessary, work of which the world may say – not: “How excellent for a woman”, but merely: “How excellent!” (IFUW: Bulletin 1926).

In her view, the only way for women to be recognised as true scientists was for them to produce “so much scholarly work of real distinction” that questions related to sex would no longer arise when a woman applied to an academic position.

All too aware of the common assumptions and biases that hindered the recognition of women scientists, Gildersleeve here synthesised the aims and ambitions of the IFUW. Founded in 1919, the Federation strove “to promote understanding and friendship between the university women of the nations of the world, and thereby to further their interests and develop between their countries sympathy and mutual helpfulness” (IFUW: Minutes Conferences 1920). Apart from the international conferences that took place every other year, one of its main strategies for achieving these goals was to grant women the opportunity to conduct research abroad. As early as 1924, an International Fellowship Programme was established, and the first fellowship was awarded a few years later to Anne-Marie Du Bois, a Swiss biologist, who conducted research in genetics at the Kaiser Wilhelm Institute (Berlin). In the course of the interwar period, about 50 fellowships and grants were awarded by the IFUW to women in the Arts and Sciences.

Funding scientists to conduct research abroad became common practice at the beginning of the 20<sup>th</sup> century, when the emergence of new actors—non-governmental organisations, and more particularly those founded by American philanthropy—reconfigured the international academic scene. The organisational principle of (American) philanthropic foundations was to promote international understanding and to act as arbiters for peace following the First World War, but they also had a substantial impact on science (Tournès 2010). Not only did they contribute to the internationalisation of science by supporting researchers’ mobility and the transnational exchange of ideas, they also participated in shaping a new type of scientific identity. They did so through programmes of international fellowships, selecting and funding the most qualified candidates. Yet how did funding bodies influence scientific identity, and what types of ideal scientists did they fashion through their international funding policies?

In recent developments in the history and philosophy of science, scholars have sought to address such questions, shifting attention from the great names and major discoveries in science to the analysis of a collective and cultural image of the scientist, using the analytical prism of persona (Condren 2006). Pioneering this new research trend, Lorraine Daston and Otto Sibum have defined scientific persona as a “cultural identity” located in-between the individual biography and the social institution. A persona both affects the individual in body and mind and creates a “collective with a shared and recognizable physiognomy” (2003, p.2). The concept constitutes an interesting tool with which to question the link between scientific authority and legitimate knowledge (Shapin 1994), and current researchers use this concept as a means to different ends. While some focus on the epistemic virtues that are cultivated within a specific scholarly community (Paul 2016), others argue in favour of an understanding of the concept of scientific persona in which embodiment and performance play an important role (Bosch 2016), analysing the impact of social categories such as gender, class or race in order to form a picture of the ways in which a scholar’s reliability and credibility are constructed. This paper borrows from the latter theoretical trends and addresses the concept of scientific persona formation from an institutional perspective.

As personas are contingent upon time and space, their emergence or disappearance reflects structural changes. Institutional perspectives on persona formation have served to highlight the different forces at work in this process. Herman Paul, for instance, has argued that external pressures, such as the “scholarly or scientific reward system”, played a role in shaping scientific personas (2016, p.137). During the interwar period, the expansion of funding bodies introduced new forms of scientific reward systems (Huistra & Wils 2016) and “grantsmanship” (i.e. the “art of acquiring peer-reviewed research funding”) thus became an influential feature of the modern scientific persona, functioning as a token of reliability. But what about a “grants(wo)manship”?

Funding practices, indeed, seemed to have been instrumental in promoting a masculine scientific persona and thus strengthened gender imbalance in science, reflecting the gender orientations of university structures and wider cultural contexts (Niskanen 2016). Although cultural representations of “what it takes to be a scientist” were grounded in masculine norms, the progressive feminisation of universities’ recruitment policies from the turn of the 20<sup>th</sup> century entailed a greater representation of women in science (von Oertzen 2014). Between the wars the presence of those “university women” was no longer exceptional. However, as the historian Margaret Rossiter has shown in her pioneering study of women scientists in America, they rarely won “any awards from or held any office in major professional associations” (1984, p. 267). The fellowship programme of the IFUW, launched as early as 1920, was one female reaction to this gender imbalance. It aspired to give women opportunities equal to those of their male counterparts, in an era when research funding and international experience played a major role in the scientific world.

On the basis of the above discussion, this paper aims to study the contributions of the IFUW in moulding and promoting a scientific persona for women through its funding policies in the interwar period. What norms and expectations were instituted in the selection procedure, and how did members of the Fellowship Award Committee define the “ideal type of woman scientist”? How did IFUW members deal with the particulars of gender and the roles that come with it? After situating the IFUW in the landscape of research funding in this period and showing its specificity, this paper will further explore the Federation’s selection process to lay bare the type of model it produced, before finally questioning the manner in which selectors dealt with gendered and sexual parameters in order to legitimise the place of women in science.

## **THE IFUW IN THE LANDSCAPE OF RESEARCH FUNDING IN THE INTERWAR PERIOD**

Researchers focusing on women’s academic mobility have pointed to the existence of a transatlantic female elite from the late 1880s (von Oertzen 2014), when university women in the Anglo-Saxon world began to organise themselves into local and national organisations. In 1918, the two main associations of university women in the United States joined forces to form the Association of Collegiate Alumnae (later called the American Association of University Women, or AAUW), appointing, for the first time, a Committee on International Relations. In her autobiography, Virginia Gildersleeve, then Dean of Barnard College and chairman of the new committee, recalled the first meeting she had with M. Carey Thomas, president of Bryn Mawr College, where the idea of an international association of university women was first mentioned (1954, p. 127). It was further developed a few months later when two English women, Caroline Spurgeon, professor of English Literature (University of London), and Rose Sidgwick, lecturer in History (University of Birmingham), visited the United States within the scope of the British Universities Mission. Appointed by the British government alongside other British academics to develop closer ties with North American universities, Spurgeon and Sidgwick also acted as representatives of the British Federation of University Women (BFUW, founded in 1907).

Together with their American counterparts they decided to establish the International federation of University Women.

In 1919, the members of the American and Canadian associations were invited to meet in London, and university women from several other countries were also contacted. A year later, on the occasion of the first International Conference, representatives from eight organised national federations and delegates from seven other countries gathered in London, and the IFUW was formally launched. The number of affiliated branches quickly increased, reaching about 40 members before the outbreak of WWII. Unlike other international women's organisations that were—in theory—open to all women of the world (Rupp 1997), the IFUW set strict membership conditions. Only "university women" could apply for membership, but the founding members had great difficulty in deciding exactly what constituted a university woman and the international dimension of the Federation necessitated the added complexity of comparing different national academic standards. They eventually agreed on defining a graduate as "a woman holding a university degree or its equivalent" in either the arts or the sciences. The profiles of the IFUW presidents reflect the international and interdisciplinary dimension praised by the IFUW. Apart from the two founders, Gildersleeve and Spurgeon, representatives of both the Anglo-Saxon sphere and the arts, the other interwar presidents were eminent scientists from other countries, such as the Norwegian biochemist Ellen Gleditsch and Johanna Westerdijk, the Dutch specialist of plant pathology.

The IFUW endeavoured simultaneously to promote women, science, and internationalism. Like most international organisations during the interwar period, the IFUW's members inscribed their work and aims in line with internationalist ideals and general beliefs on the role of education in the peace process (Walton 2010; van Oertzen 2014). In her opening speech as President in 1924, Caroline Spurgeon expressed her vision of IFUW members using a metaphor borrowed from Lord Bacon's utopian novel *The New Atlantis*. Spurgeon pictured future IFUW members in the same way as Bacon's imagined adventurers, "Merchants of Light" who travelled worldwide, gaining knowledge and bringing it back to their own countries, opening their minds to new cultures and people and fostering an international mindset dear to the IFUW spirit (IFUW: Bulletins 1924).

The internationalist orientation of scientific institutions in the first part of the 20<sup>th</sup> century, however, often functioned in the pursuit of more practical and scientific ambitions. In the case of the Rockefeller Foundation (RF), for instance, Christian Fleck and Hella Beister argue that even though the official motto of the organisation was to work toward the "well-being of mankind throughout the world", its fellowship programme sustained a more scientific argument: "to serve the advancement of the best and prevent junior faculty members from abandoning research because of their teaching loads" (2011, p. 41). The advancement of knowledge was associated with the advancement of humankind in the IFUW's rhetoric, which also stressed the participation of women in this process (van Oertzen 2014). Given that the newly founded League of Nations provided, through its committee on intellectual co-operation, a space for the engagement of culturally elite women (Goodman 2012), one can wonder to what extent IFUW members took advantage of this internationalist trend to promote a "universal science" in which women might be fully integrated.

Apart from the International Conferences, organised in different locations at two or three years intervals, various committees were established in the course of the interwar period to promote the causes and achieve the goals of the Federation. One of the committees was in charge, for instance, of "establishing an equivalent standard for admission to the Federation in every country", while another dealt with matters concerning intellectual cooperation (IFUW:

Standards Committee 1924). As part of their work, members of the IFUW's various committees conducted several international investigations, using scientific methods such as comparative studies or quantitative analysis. In 1934, Norwegian Lilli Skonhoft, chairman of the Committee on Standards, published the results of her comparative study of the educational system in 36 countries and her work was used by the League of Nations (Skonhoft 1934). Such scientific studies supported the promotion of the IFUW's work, and helped to affirm its legitimacy. Among these various committees, two were dedicated to the establishment and functioning of the IFUW international fellowship programme: the Fund Appeal committee, to investigate the ways of raising funds, and the Fellowship Award Committee.

### **EMPOWERING WOMEN SCIENTISTS: AN ALL-FEMALE FELLOWSHIP PROGRAMME**

The IFUW founders contemplated the idea of financing international fellowships as early as their first meeting in 1920. The American and British associations already had their own national fellowship programmes and the European Fellowship of the AAUW had been giving American women the opportunity to study in European centres of learning since the 1890s. The IFUW fellowship programme followed the model of these existing all-female programmes. Gildersleeve, in 1920, justified this single-sex dimension by pointing out the fact that even those men most sympathetic to the work and aspirations of women might not think of them when "the question of an exchange professorship or sending students abroad comes up" (IFUW: Bulletin 1920). Based on this observation, she spoke in favour of the participation of women in (mixed) funding bodies or a women's committee to insure equal opportunity for university women.

The IFUW programme was thus run by and dedicated to women only and the members of the Fellowship Award Committee met once a year to select the fellows. The British biochemist, Ida Smedley Maclean, acted as chairman of the Committee. As one of the founders of the BFUW and as member of its Academic sub-committee, she had experience in selecting candidates for fellowships. Her committee comprised the current and former presidents, such as Gleditsch, Westerdijk mentioned earlier, the British Professor of physiology, Winifred Cullis (president of the IFUW from 1929 to 1932), and other eminent academic women, such as the Austrian physicist, Lise Meitner, who worked at the Kaiser Wilhelm Institute and who, in 1926, became the first woman full professor of physics in Germany. The members were all highly respected in their disciplines and had opened the doors of academia to women. Most of them had international experience, and the expertise gained during their years abroad had been a key factor in their academic and scientific recognition.

The IFUW fellowships were open to women fulfilling two requirements: they had to be a member of one of the national associations affiliated with the IFUW and they had to be willing to go abroad for a year. In order to empower women in the different stages of their careers, two types of fellowships existed. Similar to other funding bodies, the IFUW had "Junior Fellowships", designed for researchers no older than 30 years who had been "engaged in research work for at least one year and who intended to do independent research work". Considering the case of more "mature women" in science, those yet to succeed in breaking into the academy, a "Senior Fellowship" was also established for candidates "preferably not older than 45" (IFUW: Fellowship Award Committee 1934). Although the International Federation was an all-female organisation, it did not seek to create a separate sphere for women in science. To the contrary, its strategy was to change the (male-dominated) professional *habitus* of the scientific community by making women scientists more visible and by pressuring men to acknowledge their work and potential. By sending fellows into laboratories and universities worldwide, where they would have to collaborate with men, the IFUW participated in the

professionalisation of scholarly women and, in this way, countered the traditional perceptions of women as “amateurs”.

In the course of the interwar period, about 350 applications were submitted for consideration. To evaluate applications that came from various countries and covered a wide range of scientific disciplines, the members of the Fellowship Award Committee called on the expertise of a “panel of judges”, comprised, according to the statutes of the committee, of women who “ought to be considered of the rank of a professor and also ought to have done research work” (IFUW: Fellowship Award Committee 1926). The fact that the IFUW did not require judges to be professors, but to be worthy of being professors, demonstrates its consciousness of the underrepresentation of women within the highest ranks of the university hierarchy. The type of “hierarchical” discrimination that women had to face (Rossiter 1984) did not mean that there were no qualified women. Rather, by not making professorship a determining factor, the IFUW members avoided reproducing or reinforcing the prevailing gendered imbalance within the academic community, and by empowering competent women to act as experts, the IFUW bolstered the visibility of capable women already engaged in science. The reputation and fame of the “selectors” was important, as it redounded on the IFUW’s reputation and on the fellows themselves.

The IFUW leaders regarded their task of encouraging women to conduct scholarly research abroad as the most “vital and necessary” work of the organization (IFUW: Bulletins 1924). They were well aware themselves of the different advantages of providing women with travelling fellowships, having personally experienced the importance of scientific mobility and international experience to the successful trajectory of a scientific and academic career. Spurgeon, for instance, referred to her study trip to Paris in 1911 as an “intellectual and emotional turn” (IFUW 1920). She had earned a degree at the Sorbonne and the scholarly publications following her Doctorate made her eligible to hold a chair in English Literature. Her appointment at Bedford College in 1913 marked an important step for women in higher education, as she was the first woman to be elected to a professorship in London, and only the second in England.

Ellen Gleditsch, third president of the IFUW, was particularly aware of the necessity for women from “peripheral” countries to go abroad and, in a book published by the Norwegian association in 1932, emphasised the importance of scientific travel by describing her own experiences. Thanks to a small Norwegian fellowship and the support of her mentor, the professor of chemistry, Eyvind Bødtker, Gleditsch went to Paris in 1907 and worked at the Marie Curie laboratory for five years. Trained as a radio-chemist at the Curie Laboratory and the Sorbonne, she had the opportunity to conduct first-rate work in collaboration with Marie Curie, something which attracted international attention. Her stay in Paris was not only fruitful in terms of research, but also gave her the opportunity to extend her network. While working in Marie Curie’s laboratory, she met Eva Ramsted, future president of the Swedish Association, with whom she kept in close contact and with whom she collaborated over the years. As she wrote in 1932, “you return from such a stay abroad with a treasure—not literally of gold but something precious nevertheless” (Gleditsch 1932 p. 246). In 1914, she was awarded a fellowship from the American-Scandinavian Foundation to study for a year at Yale University. Historians have shown that her international network and close connection to a scientific celebrity such as Marie Curie were a deciding factor in her favour when, some years later, she applied for a professorship position (Lykknes et al. 2005). Thanks to her expertise in radioactive minerals, a field important to her country’s industries, Gleditsch managed to become the second woman appointed professor in Norway.

Beside the financial advantages and the possibilities these fellowships offered in terms of training, one of the highest rewards of such opportunities lay in the prestige bestowed upon those awarded. To quote a member of the AAUW, Iva L. Peters, in 1930: “to have been chosen by a learned Committee when in competition with one’s peers, gave entrance to many doors which otherwise might remain closed [...]. This is a value that lasts” (AAUW: International Fellowship, Washington D.C. 1930). As researchers in the sociology of science have demonstrated, the award of a fellowship also confers prestige, reliability, and scientific authority to those awarded (Bourdieu 1976; Paul 2016). The institutions that awarded fellowships or prizes in recognition of scientists thus had a strong influence in shaping scientific persona. Historians working on scientific funding bodies have shown that funding practices contributed in shaping a masculine ideal type of scientist. Rossiter, in her study of the Rockefeller Foundation of New York City and the National Research Council Fellowships, demonstrates that the selection procedures of these institutions did much to define the ideal fellows as “bright, young men” (1984, p. 269). In the case of the RF in Sweden, Niskanen has showed that the RF selectors aimed to select candidates with the potential to become leaders of their field. She argues that the RF identified the ideal fellow as male, as “the supply of women in most areas was small or inexistent’ (2016, p. 15).

Unlike funding bodies supported by (American) philanthropy, the IFUW had great difficulty in raising funds. In 1924, the IFUW endorsed a plan for the foundation of an international fellowship with the aim of collecting a million dollars to create an endowment fund, the income from which, it was hoped, would finance some thirty fellowships per year. The target of a million dollars that was presented in Christiania, however, proved to be too ambitious, and was reduced to the capital sum of £6000 needed for one fellowship (IFUW: BULLETIN 1926). By way of comparison, the Carnegie Corporation was founded with an original endowment of 125 million dollars, and the RF enjoyed 182 million dollars capital (Niskanen 2016). While the value of a RF fellowship in the 1930s was \$1800 a year (about \$25,800 today), the IFUW awarded £250 per fellowship (the equivalent of \$8,300 today). Between 1924 and 1939, the RF was able to award around 600 fellowships to scholars from Europe and the British crown colonies (Fleck & Beister 2011), whereas the IFUW supported some 50 international fellowships. From this perspective, the IFUW exerted far less influence than better endowed funding bodies in science, yet we must take into account how few women there were among the fellowship holders of these other institutions. Between the wars, in Sweden, for example, there were only 2 women among 150 Rockefeller Foundation fellows, while in the case of the Belgium American Educational Foundation (BAEF), only 50 out of 471 fellows were women (Niskanen 2016; Huistra & Wils 2016), suggesting that for women in science the impact of the IFUW was far from negligible.

### **DEFINING AN IDEAL-TYPE OF WOMAN SCIENTIST**

In order to sustain and maintain the International Federation’s ambitions, the selection of the “best scholars” was essential. Not only would future fellows act as representatives of the IFUW, affecting its reputation and credibility, they would serve as ambassadors for women in science and as mentors for the next generations of students. On what basis were the fellows selected? What (implicit) norms and expectations were instituted in the selection process? A better understanding of exactly what kind of scientific persona the IFUW shaped and promoted can be gleaned from analysing the debates and official regulations of the fellowship programme and from scrutinising the selection procedure itself.

In 1957, Ruth Tryon stated in the AAUW’s commemorative book on the fellowship programme that “two things only were considered [*for selecting fellows*]: the capability of the applicant, and the usefulness of the grant for her growth and development” (1957, p. x). During

the council meeting of 1924, the board of the Fellowship Committee discussed in detail the criteria that should constitute the basis of the selection process. In one of her speeches, Smedley took as an example large, existing endowments for travelling research fellowships. She saw the Rhodes and the Commonwealth Fellowships, which selected their candidates based on personal characteristics—“especially on their power of making easy and pleasant contacts”—as a counter-model to the IFUW fellowship programme, while the Beit or the Rockefeller Fellowships, “awarded almost entirely on the standard of scientific achievement”, constituted examples to follow (IFUW: BULLETIN 1926, p. 116). According to Smedley, women should be selected on the same grounds as men in order to compete effectively with them – in other words, on the basis of their academic and scientific qualifications.

The close analysis of archived minutes from the interwar meetings of the Fellowship Award Committee give a better sense of the selection procedure. The archives include a summary of all correspondence, debates relating to the regulations of the fellowships and lists of applications received for the different fellowships to be awarded, with basic personal information about each candidate as well as the judges’ reports. Collecting and transcribing every application mentioned in the Committee’s minutes—successful or not—into a database has enabled me to pay special attention to the use and frequency of the expressions used by the panel of judges, in order to determine which qualities the IFUW members valued the most and, by extension, illuminate the type of scientific persona shaped through the selection procedure. Table 1 below summarises the most important words used to describe the characteristics of the scientific persona that the IFUW promoted through the selection of the best applicants.

Before analysing the results outlined in the table, it is important to note the formal nature of the IFUW reports. The transcribed material was concise and the authors were clearly mindful of the language they employed, conscious, it seems, that their written reports would eventually be available for other academics to read. This might explain the apparent objectivity of written material from the IFUW, in contrast to other founding bodies like the BAEF, for example, where the remaining notes appear more informal and thus subjective.

The numerous occurrences of expressions such as “outstanding”, “first-class”, “excellent”, “brilliant” and “expert” highlight the excellence-oriented and meritocratic dimension of the IFUW’s selection procedure, but also testify to the large amount of qualified women in need of funding. What is more interesting, however, is the importance accorded to the publication records presented by candidates. Such criteria helped distinguish professional scientists from amateurs (Guillemain et al. 2016), a distinction of which Fellowship Award Committee members were well aware. One of the most prominent features of the modern scientific persona is scientific “authorship”. Taking hold in early modern history with the printing revolution and the advent of scientific journals, publishing and signing with one’s own name quickly became crucial in establishing the status of a scientist (Shank 2015). With the rise of professionalism and increasing competition in science, publication in a first-rank journal became a benchmark of the modern scientific persona.

The IFUW committee and its external experts carefully scrutinised the journals in which candidates were published. The scientific reputation of the review served as proof of the quality of the applicants’ research, and, in turn, of their qualifications. Although the scholarly literature regarding publishing does not clearly address issues of gender, it is questionable whether publishing was any less biased a process than either the funding of awards or the appointment

Research quality and output	Number of references	Intellectual qualities	Number of references	Traits of personality	Number of references
Publication records	35	'Outstanding', 'first-class', 'excellent', 'brilliant', 'expert'	44	Mature, advanced	27
Originality of the research	30	Qualifications, training	27	Initiative	10
Research promising, of promise	27	Able to work independently	21	Serious	8
Research project	23	Able, competent	20	Adjectives relating to personality and temperament	3
Achievements, accomplishments	20	Merit	8	International attitude, mind	2
		Critical, logical mind	3		
		Talent, gift	3		
		Imagination	3		
<b>Total occurrences: 135 (40%)</b>		<b>Total: 129 (38%)</b>		<b>Total: 77 (22%)</b>	

Table 1 – Occurrences of the expressions used by the Award Committee to evaluate the candidates between 1925 and 1939, according to the type of qualities.

of academic positions. Indeed before the 1940s, in those academic publications implementing a system of peer-review system, anonymity only applied to the reviewers, and not to the authors (Spier 2002; Baglioli et al 2003). The absence of a “gender-blind reading” might well have played against female scientific authors, although this question begs further research.

Those awarding the IFUW fellowships paid attention not only to the content of candidates' publications, but also to their scientific style of writing. Certain styles of writing or rhetoric choices could function as “signs or stigma of amateurism” (Guillemain 2016, p.222). Therefore, while the Austrian physicist Marietta Blau was awarded a fellowship in 1932 on the grounds that she had “submitted a number of publications, given good evidence of her ability to continue carrying on independent research work”, in 1935 another candidate was eliminated because her writing was “of a journalistic [tone] and could not be considered as really scientific” (IFUW: Fellowship Award Committee 1932; 1935).

The intellectual independence of candidates constituted another important criterion in the selection process. Because women tended to be regarded either as amateurs or merely assistants to professional scientists, it was much harder for them to make a name for themselves in science. Rossiter underlines this issue of recognition for women scientists, often relegated to the role of subordinate, almost invisible associates. When Otto Hahn received the Nobel Prize in 1944 for research he had undertaken in collaboration with Lise Meitner, he mentioned the latter only as his “Mitarbeiter” (subordinate co-worker) when she was a professor and an equal (Sime 1996). The judges and Fellowship Award Committee members for the IFUW thus looked carefully not only at applicants' publications, but also at their letters of recommendation to ensure that those finally selected were able both to produce “original research” and “to work independently”.

What about the personality of the applicant? In the rare cases personality was mentioned by the Fellowship Award Committee, it was used to decide between two candidates of equivalent merit and scientific achievement. Even then, the emphasis was put on the “international” attitude of the applicants. In 1930, for example, the committee finally selected Magaretha Mes, as “personally, she appeared to be admirably adapted to hold a fellowship in a foreign country”, whereas Gertrud Kornelft failed in 1934, for, although she submitted “excellent scientific work”, the selectors felt that she was “personally less suitable as a promoter of international understanding” (IFUW: Fellowship Award Committee 1930; 1934). Such internationalist ideals were shared by most of the main funding agencies in the interwar period, and contributed to the promotion of the “scientist ambassador” as the new ideal type of scientist (Huistra & Wils 2016). But what, in the eyes of the IFUW selectors, made one fellow more “international” than another? While the IFUW archives provide no clear answer to this question, the application form offers some indications. Candidates, proficient in foreign languages and above all in English, or those who had already travelled abroad during the course of their undergraduate studies were perceived to be more likely to adapt to a new culture.

By emphasising such social—almost diplomatic—attributes, the IFUW shaped and promoted a persona in accordance with the ideal of internationalism characterising this period. But in comparison to the fellowship allocation procedures of other funding bodies, observations about the personality of candidates are remarkably absent in the IFUW Fellowship Award Committee records. If the “pleasant personality” and “charm” of candidates were mentioned in candidacy evaluations for the BAEF, for example (Huistra & Wils 2016), the IFUW selectors seemed to avoid making similar references, at least in writing. Yet the question of appearance was crucial for being taken seriously, in science as well as in other fields, and especially for women (Noakes 2008). Some, such as Marie Curie, appear to have deliberately promoted uncomely versions of themselves, using their lab coat as a gender-neutral scientific uniform. The absence of remarks regarding appearance in the IFUW records, partly due to the formal nature of the reports, might have been a deliberate strategy to prove the seriousness of the selection process and thus ensure the credibility of the candidate selected. Such motivations were certainly not explicitly articulated, but it does seem that the selection committee aimed to act within even stricter parameters than any other existing, mixed organisations.

The fellowship allocation procedure was thus mainly dependent on criteria relative to research abilities and intellectual qualities, or, to use categories developed in Herman Paul’s work, on “clusters of virtues and skills” defining “what it takes to be a scholar” (2016). If Paul’s theoretical framework is insightful, other factors, such as gender, race, and class, also played an important role in establishing the reliability and credibility of an individual (Bosch 2016; Niskanen 2016).

### **A “DISEMBODIED SCIENTIFIC PERSONA”? UNDERPLAYING GENDER AS A STRATEGY**

The IFUW selection procedures gave priority to qualities and skills, such as internationalism, authorship, and so forth, and while the sex of the applicants was the first determining factor in the selection of fellows, characteristics related to sex or gender as such were not mentioned during the selection process. To what extent did the IFUW expressly underplay gender as a strategy to legitimise women in science? How did they deal with more practical issues regarding women’s private lives, such as marriage and motherhood?

Other funding programmes promoted an ideal type of researcher who could be fully engaged in research work without being disturbed by external elements. With regards to personal life and family ties, the Rockefeller Foundation, for instance, considered wives to be a distraction and

encouraged married fellows to leave their families behind. All in all, the RF reinforced research practices that fitted men better than women (Niskanen 2016). Historians have shown that the vast majority of women who engaged in a scientific career were single (Boudia 2011; Rayner-Canham 1997), largely as a consequence of the doctrine of the separate spheres, in which work and family were viewed as incompatible for women (Abir-Am 1996); it was also partly due to the disproportion of men and women in the general population after the First World War (Nicholson 2007). The composition of the Fellowship Award Committee reflected this general trend: with the exception of Chairman Ida Smedley Maclean, who was married and had two children, all the other members were single. In her investiture speech, Gleditsch spoke in favour of celibacy when engaged in a life of research:

Research requires first and foremost a tranquil atmosphere, opportunity to think in peace and quiet, and to concentrate on a particular problem. Material worries, concerns for a husband and children who are left at home without adequate help or care, will kill all chances of a first rate effort (IFUW: BULLETIN 1926).

Yet reconciling the professional and personal lives of professional women was a recurrent theme at the IFUW's international conferences and while the personal circumstances and marital status of fellows make no appearance in the official minutes of the Fellowship Award Committee, the fifth question on the application form was "Are you married?". Unfortunately, as not all candidacy files have been preserved in the IFUW archives (only a few of those individuals successful in their application), precise statistics on the marital status of the applicants is not available. The prosopographical study of fellows in the interwar period, however, shows that a large majority were single at the moment they received their award, and most of them never married. Married women or mothers were not discriminated against as such, but in no case did the IFUW committee make special arrangements for women with families. The candidates were judged according to their merit, and their personal situations never held sway.

The outbreak of the Second World War entailed certain changes, as the conflict had repercussions for fellows; some had to postpone their trips or return earlier to their respective countries. It is remarkable, however that even when facing a period of great turmoil, the IFUW kept close to the core premise of its fellowship programme. Confronted with a significant rise in the number of the German (Jewish) applications, for example, the IFUW did not give them priority, instead creating a specific emergency fund in 1936 to assist and help exiled German academic women (von Oertzen 2014).

Underplaying gender was a strategy to counter common discriminations against women in science, but it went hand in hand with increasing the very presence and visibility of women, which is why the IFUW aimed to enhance women's opportunities in science and in academia through a single-sex fellowship programme, and sought in turn to give its fellows a better chance when applying for professorship positions. This was certainly the case of Magaretha Mes, a student of Prof. Westerdijk, who was granted a Junior Fellowship in 1930 to spend a year at Berkeley University, where she trained in one of the most important research laboratories for plant physiology studies. From this experience abroad, she became an expert in plant physiology, and was appointed to conduct research in this particular field in a South African university in 1944. She then wrote a letter to the board of the IFUW to share the news and express her gratitude towards the Federation:

Here it means a noteworthy victory for women[...]. I ascribe my success in being appointed firstly to the training I received from professor J. Westerdijk, past president of the IFUW [...]. Secondly to the chance the International Junior

Fellowship of the IFUW gave me to visit and study at universities in the USA and incidentally to discover what was being done and had been achieved by women in your country. In this an ideal was fashioned for me and I only had to try and live up to it [...] (BFUW: Academic Sub-Committee 1944).

If the IFUW developed strategies to counter “hierarchical discrimination”, to what extent did it challenge the second type of discrimination conceptualised by Rossiter, namely the “territorial discrimination” defined as “the little prestige accorded to those fields in which women were prevalent” (1984)? What type of “science” and scientific practices did the IFUW favour through the selection of its fellows? Generally speaking, it seems that the board of selectors was certainly aware that the choice of research field might impact a fellow’s career. The fellowship regulations, which clearly stated in which fields candidates could apply, show that the IFUW did not favour “feminised fields” or “female enclaves” (Rossiter 1997), such as home economics, but rather tried to integrate women in to already established—and masculinised—fields.

In the case of science fellowships, most of the candidates who applied did so in the fields of biology (45%), chemistry (19%) and physics (18%), branches that offered relatively more opportunities to women as historians have shown (Abir-Am 1996; Rentetzi 2004). Since the last third of the 19<sup>th</sup> century, Abir-Am argues, women had found more opportunities in “observational sciences”, such as botany, zoology or astronomy, disciplines that were traditionally more open to “amateurs”. How open certain fields of research were at the time to the integration of women might simply reflect contemporary cultural images of gender, such as women’s “natural inclination” for botany or medicine (Jordanova 1989; Schiebinger 1989). Conversely, mentors or female role models explain the presence of women in some disciplines, especially the “experimental sciences”. Three serious applications in the field of radiography, for example, were received from collaborators of Stefan Meyer, director of the Institute for Radium Research, whereas in the aforementioned case of Mes, the role of Westerdijk as a mentor and role model was, according to Mes herself, decisive. Both Meyer and Westerdijk were known to have been supportive of women scholars (Bosch 1994).

Cultural, institutional, and political contexts play an important role in the representation of women in science (Rentetzi 2004), and women certainly did not benefit from the same opportunities everywhere. In 1938, the Award Committee created a special fellowship, intended for unsuccessful applicants who came from “poorer countries where women had little opportunity for academic achievements” (IFUW: Fellowship Award Committee 1938).

The research projects themselves were also carefully evaluated by the selectors. Not only did these have to correspond to the highest scientific standards, they also had to be “valuable”, “important”, and “useful”. Based on the fellows’ files, it seems that the Fellowship Award Committee favoured “pure research” as a strategy to help women gain recognition as true scientists (Keller 1985; Oreskes 1996). As Westerdijk stated in a speech in 1934, women sometimes faced prejudices questioning their ability to conduct “original, independent labour in the high altitudes of the academic or scientific world”. She thus emphasised the necessity for women to show they were able to “devote their energy to pure research” in order to combat this “easy generalisation” (BFUW: Academic Sub-Committee 1934).

The Hungarian Erzsébet Kol fulfilled the two-fold purpose of the IUFW, namely supporting the advancement of knowledge and the advancement of women by “aiding gifted women in equipping themselves to play a part in that advance” (AAUW 1937). She had received a fellowship in 1936 to collect and study snow algae in North America and in a letter sent to thank the selection committee, she expressed her ambitions:

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I must do a good piece of work—so good that the male scientists will recognise it. Then they will see that a woman can really be a scientist. Then it will be easier for all women who wish to be scientists in my country (AAUW 1937).

On rare occasions, however, the IFUW valued the practical application of scientific research, as shows the case of the only Indian fellow, Kamala Bhagavat. Applying for a fellowship in 1938 to work on “milk and pulses”, she was reported by the selection committee to be “the best of the remaining candidates in the light of the subjects chosen for research and the significance of the contributions the candidates were likely to make in the future to the scientific development of their own countries” (IFUW: Fellowship Award Committee 1938). Indeed, her research proved to be of valuable importance to India, as she eventually received the Rashtrapati Award (President’s Award) for her research on “Neera”, a drink for malnourished children.

## CONCLUSION

Whether we consider the ideal type of fellow that was defined in the IFUW discourses or in its practices, what is remarkable is that that the Federation aimed to function as a meritocratic and excellence-oriented system. By rigorously basing the selection of its fellows on their intellectual abilities and scientific research, the members of the Fellowship Award Committee demonstrated their intention to put the IFUW on par with the most influential funding organisations in science at the time. Indeed, in comparison to other fellowship programmes, such as the BAEF, which historians have shown partially based its selection process on personal contacts, the IFUW seems to have shaped an even more scrupulous version of the prevailing *persona*.

This strictly meritocratic image of the Federation’s programme, however, is partly the result of the formal and rather impersonal nature of its reports and only further study will uncover whether other criteria such as age, social ties, and cultural background played a less visible but equally influential role, or to what extent the resolve to promote only the highest intellectual standards perpetuated existing privilege.

The essential point here, however, is that the IFUW fellowship programme tried to curtail the impact of personal, non-scientific characteristics or traits in the allocation of funding, promoting a “disembodied scientific persona” as a strategy to counter the traditional bias against women’s alleged amateurism and to legitimate women as professional scientists. Not only did the Federation challenge the masculine scientific persona shaped by other programmes, it also sought to prove that women could wear the same mantle as men. By eradicating certain markers and gender assumptions from the selection procedures for its fellows, the IFUW staked out room for women within the parameters of the existing norm, and in so doing sought to reshape the accepted masculine model into a universal one.

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