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Editorial

Professor Claudine Blanchet-Bardon: French dermatologist and leading authority on inherited ichthyoses[☆]A. Daunton, MBChB^a, A.R. Shipman, BMBCh^{b,*}^a Department of Dermatology, Salford Royal Hospital, Stott Lane, Salford, M6 8HD, UK^b Department of Dermatology, Warwick Hospital, Lakin Road, Warwick, South Warwickshire, CV34 5BW, UK

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ABSTRACT

This article recounts the early life and professional achievements through 2016 of Professor Claudine Blanchet-Bardon, a French dermatologist who is known for her work in dermatogenetics, genetic counseling, and the care of patients with ichthyoses among other important work.

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Introduction

Prof. Claudine Blanchet-Bardon (Fig. 1) is a world-renowned French dermatologist, best known for her extensive research on inherited ichthyoses as well as other genodermatoses and their prenatal diagnosis. This article will explore her main contributions to the field.

Personal life

Claudine Marie France Bardon was born after WWII in April 1947 in Brest, France to a Catholic family. Her maternal grandparents had a holiday home in Brest, a city that had been badly damaged during the war but where it was easier to survive than Paris. Her paternal grandfather served as a local chief in Normandy for the French Resistance movement against the German Occupation. Ms. Bardon spent her summers with a German family from the age of 10 until 22, resulting in her becoming bilingual.

Her father, Jean Bardon, was a physician so Ms. Bardon became familiar with medicine from a relative early age. He practiced part-time in the area hospital and part-time ran a private practice from the family home so Ms. Bardon became accustomed to patient

contact. Between the ages of 11 and 15, she was educated at the College Anatole Le Braz, in Brittany, northwest France. She was the only girl at the college and her father had fought hard to get her accepted to attend. Her education there was excellent and she learned to integrate into a predominantly male environment. Between the ages of 15 and 17, Ms. Bardon subsequently attended the Lycee Ernest Renan in Brittany where she found that surviving in an all-female institution was more of a struggle.

At the age of 22, Ms. Bardon married Bernard Blanchet. He was a fellow medical student at the Université de Rennes who studied obstetrics and gynecology. Their son was born on April 2, 1972, and she was glad she had a child at an early age because she was in good shape to have the “thousand arms” it required to juggle all her commitments. Although Mr. Blanchet was supportive of her studies, they later divorced. In 1979, Prof. Blanchet-Bardon met Mr. Marvin Lutzner, a professor of dermatology, while attending an electron microscopy course in Barcelona, Spain. He was on sabbatical leave in France from his position as the head of the Dermatology Branch of the National Institute of Health in the United States. They married in 1984 and Mr. Lutzner never returned to the United States. His main accomplishments include the discovery that skin cancers in transplant patients are related to an infection with the human papilloma virus. Prof. Blanchet-Bardon and Mr. Lutzner eventually divorced after many years of a happy marriage.

Prof. Blanchet-Bardon's hobbies include cooking and collecting cooking books. She also has an extensive taxidermy collection as a result of her interest in the skin of animals and has helped curate her husband's museum on the subject.

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Figure 1. Professor Claudine Blanchet-Bardon. http://weill-raynal.typepad.fr/photos/instantans_de_campagne/clauidine2.html By Stephen Rees, Accessed 4 October 2016

Professional life

Prof. Blanchet-Bardon received her Bachelor's Degree in 1964 at the age of 17. She initially went to the provincial Université de Rennes in Brittany to study medicine. She took the Concours and achieved the Internat des Hôpitaux with a 27th place out of 600 students. Only the top 37 students were awarded the Internat des Hôpitaux, which conferred the right to select the most prestigious hospitals and universities to attend along with a stipend. Thus, Prof. Blanchet-Bardon was allowed to work at the prestigious Université Paris Descartes, where she became an intern in 1971. Only interns were eligible to apply for academic positions and become specialists. Prof. Blanchet-Bardon was the first female student from Rennes to achieve an Internat des Hôpitaux de Paris and was therefore invited to share tips with other female students on how to succeed in a predominantly male environment. Although she was pregnant when she commenced her internship, her husband at the time encouraged her to take the opportunity, for which she remains grateful.

In Paris, Prof. Blanchet-Bardon initially hoped to train as a surgeon but her small stature was an impediment. Therefore, she entered the departments of dermato-venerology and general pathology and earned specialist certifications in 1976 and 1974, respectively. Since specialists were obligated to practice only one specialty, she subsequently decided to work exclusively in dermato-venerology. While waiting for a suitable position as a Chief of Clinic to become available, she applied for research grants and subsequently became the first French physician (and only dermatologist for several decades as well as one of only a few women at that time) to win the prestigious Von Humboldt research grant, a German research prize fund open to all scientists for which she faced stiff competition. Using her language skills and connections in Germany, Prof. Blanchet-Bardon travelled to Heidelberg to work with Prof. Ingrid Anton-Lamprecht, a female botanist who was working in the dermatology department of Prof. Urs Walter Schnyder as an electron microscopist with a focus on genodermatoses. Here, Prof. Blanchet-Bardon developed her life-long interest in the genodermatoses under the auspices and tutelage

of Prof. Anton-Lamprecht. She remains grateful for the education and support that Prof. Anton-Lamprecht provided her over those years.

During her studies, Prof. Schnyder asked her to investigate whether etretinate modified the cellular defects that were seen in genodermatoses. Prof. Blanchet-Bardon went on to show that the retinoid drug decreased the number of keratinocytes and abnormal tonofilaments in a patient with congenital bullous ichthyosiform erythroderma.

For the majority of her remaining career, Prof. Blanchet-Bardon worked within the dermatology department at the Hôpital St Louis in Paris (Fig. 2). Upon her return to Paris, she set up a practice using her experience in genodermatoses, electron microscopy, and etretinate. She obtained a supply of the retinoid drug from Roche in Paris and started using it to treat patients. Within a year, she had established a formal clinic to treat genodermatoses and was attracting patients internationally. Prof. Blanchet-Bardon always worked within the public health system and never took up private practice. Remaining within hospital-based dermatology and only charging those fees that were mandated by the French social security health insurance system placed her among a minority of dermatologists within Paris. She never had an interest in charging for consultations and campaigned strongly for social security to support patients (particularly those with genodermatoses) while helping them set up patient support groups in the 1980s. In 1977, she helped establish the Centre for the Study and Treatment of Genetic Skin Diseases and was eventually promoted to the head position in 1990, making her the first female to ever hold this role. She was also officially put in charge of the Government's Laboratoire de Référence Genodermatoses in 2005 by President Jacques Chirac.

In 1980, Prof. Blanchet-Bardon was approached by an obstetrician, Yves Dumez, to discuss the issue of prenatal diagnosis. He had already succeeded in withdrawing blood from the umbilical cord and managed to provide skin samples, which allowed Prof. Blanchet-Bardon to make the first recorded prenatal diagnosis of Harlequin ichthyosis in 1982 using electron microscopy. She first published her research findings in 1983 (Blanchet-Bardon et al., 1983) and received the Bronze Medal from the American Academy of Dermatology for this work. She subsequently worked with others, including Charles Rodeck, to advance this field of medicine. As a Catholic and as a physician with a close relationship to her patients, Prof. Blanchet-Bardon helped counsel families through this difficult area, explaining that prenatal diagnosis could allow them to have healthy children. She received assistance from religious leaders, including Rabbis and the Imam of the Paris mosque (who was also a cardiologist) in counseling her patients. This research was pivotal in allowing parents to make informed choices about whether to continue an affected pregnancy. Prof. Blanchet-Bardon would later publish review articles on genetic counseling in dermatology and her personal experience on the subject (Blanchet-Bardon and Nazzaro, 1987). In 1984, she was appointed by the French government as the Director for the National Laboratory of Prenatal diagnosis.

In 1985, Prof. Blanchet-Bardon was elected to the Board of the French Society of Dermatology, on which she served for 16 years including 4 years as treasurer in the 1990s. While working with the French Union of Dermatologists, she joined scientific societies, helped with multiple annual meetings, and was instrumental in the installation of a system of speaker evaluation at the end of sessions. She has chaired countless meetings, presented posters, and accepted invitations from many conferences, lecturing in French, German, and English.

In 1992, Prof. Blanchet-Bardon was awarded a professorship, an accolade which greatly forwarded her work, reputation, and the glory of her department. However, she had to fight for the honor and found some barriers were erected after her distinction but she continued undeterred. Her work in prenatal diagnosis earned her



Figure 2. Hôpital St. Louis. https://www.flickr.com/photos/stephen_rees/7189481868/in/photolist-bXiYtW-9Cb7Rn-bXiZhF-BTgSU-bXiY7q-bXiVj3-r5z49X-bXiVBY-cWBGef-fmV9iq2bXiW1h-a4JU1G-c5MNEC-6pQ47K-9Cb9zD-eYxCZ-7rGdQ-e65nn3-bXiWoLbXiUWf-bXiXM9-bXiWPU-6qGpZL-54gFx7-6qGpy5-8vzn6a-6qCetx-6qC5Hk-6qCgVl-6qGgGU-5ujbCP-6qCiPr-6qGssy-6qCdx4-6qGuNu-ev2ot-6qChFk-6qC5it-88FE3x-88JtJ-5AvEap-6qCeM6-6qGhe1-6qGu5m-5pZJ2m-nn7Hmr-6qGgWN-6qGrSq-bsfH3s/
Accessed 4 October 2016

the Alfred Marchionini International Prize for Research at the World Congress in New York in June 1992. Prof. Blanchet-Bardon was awarded multiple prizes over her lifetime including from the American Academy of Dermatology for her creation of patient education videos, and from the National Academy of Medicine in 1991.

In the 1990s, she published several articles on the genetic basis of the different ichthyosis syndromes. One of these publications helped identify the role of mutations in the protein transglutaminase-1 in autosomal recessive lamellar ichthyosis (Parmentier et al., 1995). Prof. Blanchet-Bardon was also involved in clinical studies on the treatment of ichthyoses and demonstrated, for instance, that liarozone has equivalent efficacy to acitretin in the treatment of the ichthyoses (Verfaillie et al., 2007). In the 1980s, she was also one of the first to highlight the possible role of HIV infection in acquired ichthyosis (Bories et al., 1984). The major focus of Prof. Blanchet-Bardon's research career has been on the diagnosis, characterization, and treatment of genodermatoses, and especially inherited ichthyoses. As of March 2016, she has published a total of 118 Pubmed-cited articles in French, English, and Italian.

In addition to ichthyoses research, Prof. Blanchet-Bardon was also active in the exploration and establishment of prenatal diagnosis for other genodermatoses and is perhaps best-known for her work in DNA-based prenatal diagnosis of different epidermolysis bullosa syndromes (Blanchet-Bardon et al., 1987). She has published numerous review articles as well as case-series and studies, encompassing fields such as ophthalmological complications in hereditary epidermolysis bullosa (Deplus et al., 1999); nonsense mutations identified in a

family with severe recessive dystrophic epidermolysis bullosa (Hovnanian et al., 1994); and hypohidrotic ectodermal dysplasia in 30 family members over 3 generations (Gilgenkrantz et al., 1989).

Prof. Blanchet-Bardon held numerous positions within associations for different genodermatoses throughout the 1980s-2000s, including the National Ichthyosis Association for which she served as President of the Scientific Council from 1989-2002, the Scientific Council of the Neurofibromatosis Association, and the Scientific Council of Orphanet (pan-European reference portal that provides information on the diagnosis and management of rare diseases for both physicians and patients). Prof. Blanchet-Bardon retired from clinical practice in 2012 but remains active in publishing research papers.

National honors and political life

Prof. Blanchet-Bardon was elected to the Council of French Union of Dermatologists in 1986, and to the Council of French Physicians in 2003. In 1998, while liaising with her Canadian colleagues, she launched the first National Cancer Prevention and Screening Day. This event continues to run to date and the 18th meeting recently took place on May 26, 2016. In 2013, using the social security system for farmers, Prof. Blanchet-Bardon was able to create a national teledermoscopy screening program for French agricultural workers. This involved the training of general practitioners to recognize skin cancers and disseminate dermatoscopes, as well as the employment of five full-time dermatologists in Paris to review the dermatoscopic images from the provinces and advise on management.

From 1996 to 2009, Prof. Blanchet-Bardon served as a French delegate to the European Union of Medical Specialists, a non-governmental organization that represents the national associations of medical specialists from the European Union member states, with among other aims the establishment of minimum standards for postgraduate education among member states and the development of a pan-European alternative to national postgraduate exams.

Prof. Blanchet-Bardon has also been active in patient advocacy throughout her career. In 1985, she helped establish the Dystrophic Epidermolysis Bullosa Research Association in France (L'Association DebRA France), which performed roles both as a patient support group and a research organization. In the 1990s, she helped patients take legal action to have ichthyosis recognized by the French social security system as a long-term affliction, and thereby have affected patients qualify for complete reimbursement of all associated medical costs. She would later also help reduce the rates of patient co-payments for popular French emollients and wound dressings that are used for other conditions as well as for sunscreen for patients with xeroderma pigmentosa. Through her campaigning and work with patient groups, Prof. Blanchet-Bardon has reduced the costs borne by patients who are afflicted with genodermatosis, helped patients integrate into society, and has become an expert in dressings. She has tackled commissioning and worked to get reimbursement for nursing time and treatments. Over 25 years, she has tried her utmost to make life easier for patients with genodermatoses, readily helping with inquiries, reports, and grants.

Her services to dermatology, and in particular those for patient advocacy, were recognized nationally in France when she was awarded the Legion d'Honneur in 2004. Prof. Blanchet-Bardon was the second dermatologist to have ever received this honor. She was appointed Officer of the National Order of Merit in 2012.

Outside medicine, Prof. Blanchet-Bardon served as a Parisian borough councilor for the Liberal Democratic Party of France (UMP) from 2001 to 2008. She describes her politics as Gaullist, right-wing but with a social fiber. She was elected to represent her local district and found it a great pleasure to serve in this capacity. Prof. Blanchet-Bardon likens her time in this role to her work as a doctor—requiring

empathy and listening to the complaint, establishing a diagnosis, and doing one's best to find a solution.

Conclusions

Prof. Blanchet-Bardon deserves recognition as one of the leading authorities on congenital dermatoses of the late 20th and early 21st centuries. Her work on prenatal diagnosis has transformed the decision-making process and permitted better-informed choices for at-risk families. This, alongside her work with patient groups, has led to her national recognition in France.

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