International Journal of Biometeorology (2021) 65:985–987
https://doi.org/10.1007/s00484-021-02144-7

EDITORIAL

In memoriam of Professor Terry Gillespie

Jennifer Vanos [1] · Robert D. Brown [2]

Received: 29 April 2021 / Revised: 30 April 2021 / Accepted: 30 April 2021 / Published online: 10 May 2021

Dr. Terry Gillespie, an emeritus professor at the University of Guelph, passed away suddenly on December 2, 2018, following a brief illness. We would like to honour his memory with a special editorial highlighting his contributions to research, mentorship, and teaching in agrometeorology and biometeorology. We are especially honoured to publish new work, co-authored with Terry, encompassing some of Terry's last research efforts. At the time of his death, we had been actively working through ideas, data, and analysis with Terry on methods and measurements concerning radiation absorbed by humans affecting thermal comfort, which is published in this issue of the International Journal of Biometeorology (IJB) (Vanos et al. 2021). Terry and Bob liked to call the paper "People are Cylindrical… Elephants are Globular" because the study focused on providing solutions to errors from globe thermometers when applied to humans. Terry's notes and calculations on cylinders, spheres, ellipses, colours, sizes, and solar exposure were exciting and fun to review and test out. This new paper importantly shares such knowledge and solutions to support more accurate measurements with low-cost sensors of mean radiation temperature (or absorbed radiation) by a human. The paper accomplished the most systematic testing of various devices, specifically the cylindrical radiation thermometer (CRT), invented by Bob and Terry in 1986 and shared via IJB (Brown and Gillespie 1986). Subsequent work on the CRT under Terry's guidance was also published in IJB (Krys and Brown 1990; Kenny et al. 2008, 2009a, 2009b; Hardin and Vanos 2018).

Terry is most well-known for his work on meteorological aspects of plant diseases and atmospheric chemistry, especially related to the interactions with plants and agriculture. Many of these publications are published in IJB (e.g. Schaafsma et al. 1993; Sentelhas et al. 2004, 2005, 2007). His work on micro-meteorological aspects of thermal comfort and landscape architecture began later in his career. In 1980, Bob was looking for a topic for his Master of Landscape Architecture thesis that related his interest in microclimate with landscape architecture. He tracked down Professor Gillespie, who was on sabbatical at the time, and arranged for a half-hour meeting. That meeting turned into a 2-h brainstorming session where they excitedly laid the foundation for more than 40 years of collaboration. Over the next few years, they developed the human energy budget model that Terry liked to call *COMFA*, and they invented the CRT, which Terry called *littleman*, a nod to the movie "Little Big Man". This collaboration led to numerous contributions from both Bob's and Terry's students in the biometeorological and the landscape architectural communities, in addition to those listed above (Vanos et al. 2012; Briggs et al. 2017), and a very well-known and fundamental cross-disciplinary textbook on Microclimatic Landscape Design (Brown and Gillespie 1995).

Terry, pictured in Fig. 1, is famous for his teaching, winning some of the most prestigious awards, including the 3M National Teaching Fellowship in Canada in 1988, the highest national honour for innovative teaching and leadership in pedagogy. It is not an exaggeration to say that students loved learning from Terry. He worked with students as partners in learning, consistently engaging with us with an insatiable sense of humility, curiosity, and respect for student's questions, thoughts, ideas, and input. He had a unique ability for making the complexities of physics and math in meteorology fun and instills deep interest in the topics. We fondly remember the many props Terry would bring into class, such as the "bowl of jelly" Jetstream using a wavey kitchen bowl, or his colourful Styrofoam cutouts to show a 3-D frontal system for the students. Terry also brought the most interesting examples to class from being a weather forecaster at airports on Canada's east and west coasts. He always arrived early and stayed late for class to meaningfully interact with students. For many of us learning from Terry in the 1980s, 1990s, and

✉ Jennifer Vanos
Jenni.Vanos@asu.edu

[1] School of Sustainability, Arizona State University, 800 Cady Mall #108, Tempe, AZ 85281, USA

[2] Department of Landscape Architecture and Urban Planning, Texas A&M University, College Station, TX, USA

Fig. 1 **A** Terry in 1988. **B** Bob, Terry, and University of Guelph Chancellor Martha Billes in 2018 where Bob received University Professor Emeritus. **C** The Agrometeorology Group in 1984, led by Terry (centre back). The group is wearing their "Agmet U*" T-shirts. The "U-stars" name was based on a logo design competition with the winning entry combining the famous U* in the log-law wind profile equation with the Minnesota NHL team that was known as the North Stars at this time. Terry loved his U* T-shirt. (Bob is the tall bearded fellow in the red shirt on the right)

2000s, he was the first person to introduce and engage us in the topic of climate change, ensuring that all learners had a clear understanding of the science behind its potential impact on society.

Indeed, we both benefited tremendously from Terry's engaging and impactful teaching methods in meteorology and climatology and were able to work with Terry as Teaching Assistants and Ph.D. students, learning from his careful advising. Terry was truly a life-changing educator and researcher. Jenni recalls fondly Terry's ability to make research fun, with a quote she continually tells her own students today: "If we knew the answer, then it wouldn't be research, would it?" Terry's graduate students were sponges for his knowledge and valued all meetings and guidance from Terry's keen eye. Dr. Natasha Kenny said it well: "It is rare in University where you are mentored by incredible colleagues, who consistently challenge you to be your best and motivate learning from a space of kindness and respect." That was Terry—a colleague and a friend.

Many across Canada and within the agrometeorology and biometeorology communities were so positively impacted by Terry's presence. After retirement, he was often found "rocking the house" with the Guelph New Horizons Band playing his saxophone and refereeing the departmental soccer games. He also continued his scientific legacy and remained the same passionate and inspiring mentor to his students and colleagues that he always was. He is so sorely missed, but his impacts live on in his students.

Notes of Terry's phenomenal career: Terry received his B.Sc. in Physics from the University of British Columbia in 1962 and his M.A. in Meteorology from the University of Toronto. He worked as a weather forecaster for the Meteorological Service at Dorval and Goose Bay airports before completing his Ph.D. at the University of Guelph in 1968 as the first Ph.D. student graduating from the new Agrometeorology program at Guelph. Immediately after, he was hired as an Assistant Professor. From 1968 to 2005, he taught 10 different meteorology courses at the University of Guelph, educating hundreds upon hundreds of undergraduate

students. In addition to the highest honour of the 3M National Teaching Fellowship, he was awarded Guelph Faculty's Distinguished Professor Award in 1984 and the Agricultural College Alumni's Distinguished Teacher Award in 1986, and extended his assistance to workshops on teaching in Ghana and Beijing. Terry was also a Fellow of the Canadian Society of Agricultural and Forest Meteorology.

References

Briggs AGS, Gillespie TJ, Brown RD (2017) Measuring facial cooling in outdoor windy winter conditions: an exploratory study. Int J Biometeorol 61:1831–1835. https://doi.org/10.1007/s00484-017-1368-3

Brown RD, Gillespie TJ (1986) Estimating outdoor thermal comfort using a cylindrical radiation thermometer and an energy budget model. Int J Biometeorol 30:43–52

Brown RD, Gillespie TJ (1995) Microclimate Landscape Design. John Wiley & Sons, Inc.

Hardin AW, Vanos JK (2018) The influence of surface type on the absorbed radiation by a human under hot, dry conditions. Int J Biometeorol 62:43–56. https://doi.org/10.1007/s00484-017-1357-6

Kenny NA, Warland JS, Brown RD, Gillespie TG (2009a) Part A: Assessing the performance of the COMFA outdoor thermal comfort model on subjects performing physical activity. Int J Biometeorol 53:415–428

Kenny NA, Warland JS, Brown RD, Gillespie TJ (2009b) Part B: Revisions to the COMFA outdoor thermal comfort model for application to subjects performing physical activity. Int J Biometeorol 53:429–441

Kenny NA, Warland JS, Brown RD, Gillespie TJ (2008) Estimating the radiation absorbed by a human. Int J Biometeorol 52:491–503

Krys SA, Brown RD (1990) Radiation absorbed by a vertical cylinder in complex outdoor environments under clear sky conditions. Int J Biometeorol 34:69–75

Schaafsma AW, Fuentes JD, Gillespie TJ, Whitfield GH, Ellis CR (1993) Performance of a model for egg hatching of the western corn rootworm, Diabrotica virgifera virgifera LeConte, using measured and modelled soil temperatures as input. Int J Biometeorol 37:11–18. https://doi.org/10.1007/BF01212761

Sentelhas PC, Gillespie TJ, Batzer JC, Gleason ML, Monteiro JEBA, Pezzopane JRM, Pedro MJ Jr (2005) Spatial variability of leaf wetness duration in different crop canopies. Int J Biometeorol 49:363–370. https://doi.org/10.1007/s00484-005-0259-1

Sentelhas PC, Gillespie TJ, Santos EA (2007) Leaf wetness duration measurement: comparison of cylindrical and flat plate sensors under different field conditons. Int J Biometeorol 51:265–273. https://doi.org/10.1007/s00484-006-0070-7

Sentelhas PC, Monteiro JEBA, Gillespie TJ (2004) Electronic leaf wetness duration sensor: why it should be painted. Int J Biometeorol 48:202–205. https://doi.org/10.1007/s00484-004-0200-z

Vanos J, Warland J, Gillespie T, Kenny N (2012) Thermal comfort modelling of body temperature and psychological variations of a human exercising in an outdoor environment. Int J Biometeorol 56:21–32

Vanos JK, Rykaczewski K, Middel A, Vecellio DJ, Brown RD, Gillespie TJ (2021) Improved methods for estimating mean radiant temperature in hot and sunny outdoor settings. Int J Biometeorol. https://doi.org/10.1007/s00484-021-02131-y.