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Standing on the shoulders of giants

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In this editorial, the author explains that the journal *Temperature* stands on the shoulders of giants—prominent scientists of the past and current members of the *Temperature* community. *Temperature* also uses the best tools, such as Google Scholar profiles. The editorial includes a new puzzle: why does warm water freeze faster than cold water?

Takeoff

With a beautiful photo of the thermoregulatory behavior of white-fronted bee-eaters on the first cover, *Temperature* has taken off. Alex Steiner, an Editorial Board member, reflected on this dramatic event in a unique way (**Fig. 1**). Takeoff—the muscles contract, and the feathery sails fill themselves with compressed air. Great forces develop and produce great accelerations, but velocities and altitude remain at near-zero—a true drama of second derivatives! But do not mistake the slow start and a little awkwardness for incompetence! Some slow starters fly high. Asian geese, the highest flying birds on the planet, are a good example. They may look a bit heavy, but they routinely cruise over the Himalayas!

Alex's photo also contains an unintended allegory: one way to see things better is from a bird's eye view. An alternative, though even more extravagant, solution for taking a better look would be…to climb onto the shoulders of a giant. And this is exactly what *Temperature*'s readers, authors, and editors have done. In fact, we have done this in three different ways.

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First, by Acknowledging Our Predecessors

In science, we do stand on the shoulders of those who have worked before us. **Figure 2** shows how this idea is expressed by another member of the *Temperature* Board, Jos van der Meer, who is also an accomplished artist. *Temperature* shares Jos' appreciation of the history of science. I am happy to report that the first two issues include two history articles.[1,2] The first one is written by Charles Tipton and Kevin Kregel and dedicated to the legacy of Carl Gisolfi (1942–2008), a prominent American exercise and thermal physiologist.[1] The second article, authored by Zoltán Szelényi and Miklós Székely, is about Szilárd Donhoffer (1902–1999), the founder of pathophysiology and thermoregulation research in Hungary.[2] With 82 publications in PubMed, dated between 1947 and 1997, five of which are in the journal *Nature*,[3-7] this Hungarian scientist is an important, albeit underappreciated, figure in the thermoregulation-related sciences in the 20th century.

I did not know Professor Gisolfi personally, but I did have the privilege of being introduced to Professor Donhoffer, as well as subsequently talking to him a few times. In 1989, as a young Ph.D. student from the Soviet Union, I visited the Department of Pathophysiology at the University of Pécs Medical School, where Dr. Donhoffer worked as a Professor Emeritus. It was at the very end, but also at the climax, of the communist period in Eastern European history, when bureaucratic institutions, academic and otherwise, were mighty in their overreaching power, monumental in their scale, and seemed immortal. One of the greatest impressions of my first visit to Pécs was seeing how the nearly 90 year old Professor Donhoffer, a member of the Hungarian Academy of Sciences and a former Rector of the Medical School, worked in his office at the university wearing… shorts. It was summer, and it was hot, but remember that faculty members in those days typically wore a tie to work. I had a feeling that the old man would not hesitate to challenge any scientific dogma or to fight bureaucracy!

With the proliferation of the information boom we are living in, young scientists spend less and less time reading about such secondary aspects of their research interests as historical accounts. Mainstream journals seldom publish such accounts—history articles will not build a journal's impact factor! But low demand does not mean low importance. *Temperature* will continue publishing historical materials. Not every student will be interested in reading about the giants upon whose shoulders we stand, but some will. They now have a chance to read about Professors Gisolfi[1] and Donhoffer.[2] The current issue also contains Clark Blatteis' book preview on the history of thermoregulation[8]—shhh, it's coming!

Second, by Using the Help of Our Colleagues

Temperature would not be possible without the strong support it has received from the thermoregulation community. Thank you! More than 90% of invitations to *Temperature*'s Editorial Board have been accepted. At the time of this writing, *Temperature*'s Editorial Board includes 92 scientists representing 19 countries and six continents. It includes several members of the prestigious National Academy of Sciences of the USA and members of several other academies. For example, Jos van deer Meer, the author of the cartoon shown in **Figure 2**, is a member of both the Royal

Figure 1. Takeoff. Photo by Alexandre A. Steiner.

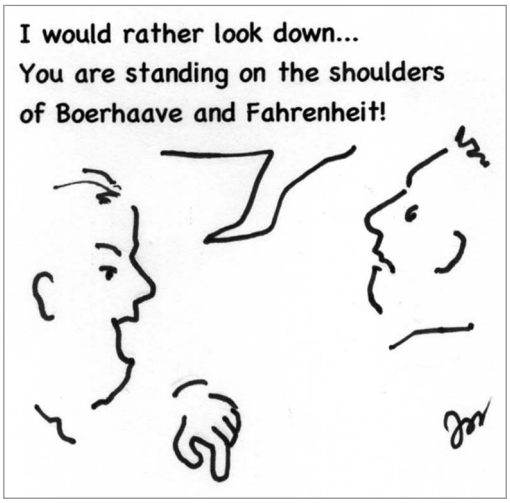

Figure 2. Standing on the shoulders of giants. Cartoon by Jos W. M. van der Meer.

Netherlands Academy of Arts and Sciences and the *Academia Europaea*. *Temperature*'s Board also includes authors featured in various "most cited" lists and winners of major prizes. One of our Scientific Advisors, Camille Parmesan, participated in the Intergovernmental Panel on Climate Change, who, together with the former USA Vice-President Al Gore, was awarded the Nobel Peace Prize in 2007 "for their efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change." Camille's legacy article opens this issue.[9] *Temperature* has gathered an unprecedented amount of talent and expertise from the thermoregulation field. I am very pleased to see that *Temperature*'s Editorial Board stands as a giant among the journals with related scientific orientation. The contribution of each individual member may be relatively small, but together—like the bee-eaters on the inaugural cover—we produce enough heat to raise and maintain our *Temperature*.

Third, by Tapping into a Gigantic Resource

The name of this resource is Google Scholar. It is a 10-year-old web-based search engine that indexes the full text of scholarly literature in a wide range of publishing formats and scientific disciplines. It covers some non-peer-reviewed journals and scholarly books, but mostly peer-reviewed journals, such as *Temperature*. According to its website, Google Scholar aims at ranking publications "the way researchers rank them, weighing the full text of each document, where it was published, who it was written by, as well as how often and how recently it has been cited in other scholarly literature." The advertised slogan of Google Scholar is "Standing on the shoulders of giants." Allegedly, Google took it from Isaac Newton's correspondence, but the same allegory can be found much earlier in history.

The reason I am writing about Google Scholar is deeper than the mere appreciation of a sexy slogan. I was looking for a good tool to aid the work of authors, reviewers, editors, and Board members of *Temperature*. How can a potential author find a good reviewing editor for his or her manuscript? Who has published most recently on a certain topic? Who are considered "experts" in any specific area? Would it be a conflict to ask Professor Wang to process a manuscript by Dr. Jackson? Is author W. Wang the same Professor Wang who has published a particular paper? Is Editor Jackson the same Dr. J. Jackson who led research on a certain topic years ago? While we have many tools to aid us in answering these questions, one tool simply dwarfs all the competition. This tool is the Google Scholar profile.

For my sisters and brothers (conservative older folks, who are technology-suspicious communication-avoiders and terrified by the slightest possibility of receiving an unsolicited piece of e-mail), Google Scholar is not to be feared. It is not a social networking site. It does not allow any communication. No "winking," no linking, no "liking," no "poking," no blogging, no hashtagging, no snapchatting, no "sharing," no scaring—no interactions with the world, period. When you

create your profile, your e-mail address remains private, and because it is not posted anywhere, it will not generate any e-mail traffic. The silence of your ivory tower will not be threatened; the solitude of your cell will not be violated; the rambunctious crowd that wishes to socialize and have fun will not penetrate your scientific fortress. Yes, you can review a long manuscript for *Temperature* and slowly fry your brains over the missing commas—without being distracted. Relax, you are in no danger.

On a serious note, a Google Scholar profile can be set up in minutes and allows you to display the following information: your name, institution, up to five keywords, and a link to the website of your preference, typically your lab's homepage (**Fig. 3**). All this information, except for your name, is optional, and if you are bald enough—sorry, I meant "bold enough,"—you can include your photo as well. Google Scholar automatically adds your citation statistics and your publications list. Their choice of citation statistics is excellent and includes the total number of citations and the *h* index, among others. The only criticism I have is that Google Scholar does not include the *r* index,[10] which—personally—I prefer, for some inexplicable reason. Well, no tool is perfect!

Certain features of Google Scholar profiles are unique. Perhaps the most important one is that it allows you to readily exclude from the list of publications all publications that are not yours and to include all publications that are yours—even if your name was strangely transliterated or misspelled on any particular publication, or if it was published in a language that does not use the Roman alphabet, or even if you used a different name. Google Scholar allows a visitor to find all publications of Professor Wang, the one you are looking for, approved by that same Professor Wang, and all publications by Dr. Jackson (even if they were published under her maiden name), approved by Dr. Jackson. Any changes to your list of publications are done very easily, with a click of a button, and are automatically saved. Publications are updated automatically. When viewing a profile, you can arrange publications of any particular author either from latest to oldest

Figure 3. Google Scholar profile, a schematic. Only selected features are shown. The photo of bald eagle is by Tony Hisgett; Wikimedia Commons.

(if you press on the "Year" button at the top of the publications table) or from most cited to least cited (if you click on "Cited by"). Has a particular paper by Professor Wang been well received? What has Dr. Jackson been working on recently? Answering these questions is easy-peasy—provided Professor Wang and Dr. Jackson have Google Scholar profiles. Google Scholar also allows you to disclose your co-authors in a list on the right (**Fig. 3**). The engine makes suggestions as to whom to include (and you just press a button to accept or reject), and then it ranks your coauthors automatically, in the order that seems to agree with their overall contribution to your published research. Hence if Professor Wang is listed among the top coauthors of Dr. Jackson, he probably should not be invited to review her manuscripts.

In your profile, you can list up to five keywords, which are prominently displayed in the top portion. The keywords can be changed easily and as often as you wish—by clicking the "Edit" button—takes a second. Furthermore, if one clicks on any keyword in any particular profile, he or she will see all other scientists who selected the same keyword, and how the owner of the profile you were looking at is ranked (by the total number of citations) among them. This feature can be really useful if one is looking for experts in a particular field—whether this is an author looking for a Board member with expertise in the manuscript's area or an editor who is trying to assign an expert reviewer to a manuscript. Thank you, Google Scholar!

Last but not least, if you have a website you would like to share with the viewers of your profile, you can post a link to that website. This link is displayed at the very top of your profile and is highly visible.

If one has time and interest to explore Google Scholar, he or she will find profiles of some true giants, e.g., Ivan Pavlov (1847–1936; **Fig. 4**). Professor Pavlov, widely known today for his work on classical (Pavlovian) conditioning, was nominated for the Nobel Prize in Physiology or Medicine repeatedly, for various studies. He was awarded this prize in 1904 "in recognition of his work on the physiology of digestion." With 19,002 citations (Google Scholar; June 25, 2014), Pavlov remains among the most cited physiologists of all times, even though not a single original publication by Professor Pavlov is listed in PubMed.

Many members of *Temperature*'s Editorial Board also have Google Scholar profiles, which can be accessed from the journal's website—birds of a feather flock together! *Temperature* needs to present some information about its 92 Board members to potential authors. Should the journal rely on the 92 absent-minded "bald eagles," their assistants, and the army of webmasters working for dozens

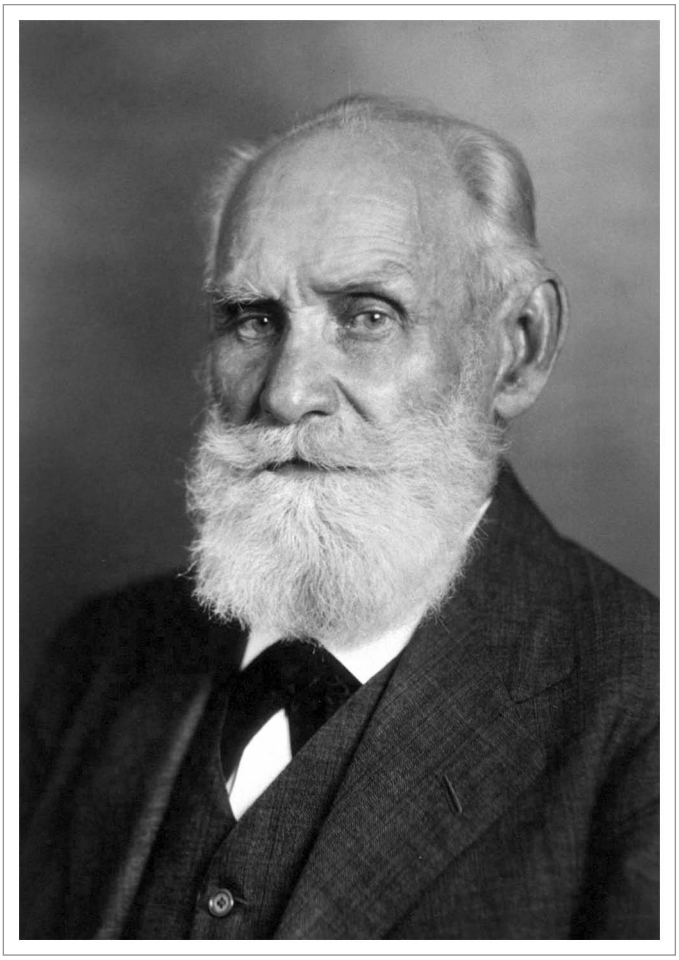

Figure 4. Ivan Petrovich Pavlov. The author and date of the photo are unknown; Wikimedia Commons.

of institutions spread over six continents to keep and timely update this information? Or should it delegate this function to the capable giant named Google? All new members of the Editorial Board are required to list their Google Scholar profiles—let's just use the best tools available! Yet another nice feature of Google Scholar is that it shows every article published by *Temperature* almost instantly.

A *Temperature* Puzzle for Dessert

In my previous editorial,[11] I included a puzzle, which was brought to my attention by Miklós Székely, another *Temperature* Editorial Board member, and inspired by Szilárd Donhoffer's research.[12] "A group of rats was fed a low-protein chow and kept at room temperature; all animals died. Another group of rats was fed the same chow but kept in the cold; all survived. How would you explain the phenomenon observed?"[11] *Temperature* has received correct answers by e-mail from Jan Nedergaard, Matteo Cerri, Wouter van Marken Lichtenbelt, and András Garami—all of whom are our Board members. But the best and most detailed answer came from Shane Maloney (yes, also a Board member). Shane's answer (letter to the editor)[13] and Miklós' and my reply[14] to his letter are published in the current issue. A conclusion: our Board members know everything!

In my last editorial,[11] the puzzle was placed under the heading "A temperature-related puzzle for dessert," but it dealt with rats and malnutrition—yuck, not very appetizing! This unfortunate misalliance has now been corrected: the new puzzle is about ice cream, yummy! This puzzle has been written for *Temperature* by Gerald Pollack, the author of several best-selling books, including my favorite, "Cells, gels and the engines of life."[15] The puzzle is based (hint) on Jerry's latest book. In 1963, Erasto Mpemba, a precocious middle school student in Tanganyika (now Tanzania) was taking a cooking course. The subject was making ice cream. The participants would dump a premixed "ice cream" powder into water, stir the mixture, and stick it into a freezer. Soon they would enjoy their dessert. Mpemba noticed something odd. When he mixed the powder with warm water instead of cold water, the ice cream froze sooner. Since then, many have confirmed the Mpemba paradox: warm water freezes more quickly than cold water. Why?

Temperature will publish the winning explanation. The format of any front-matter article can be used to report the answer. A letter to the editor seems to work well.[13] Or perhaps you can find a paper by Mpemba (yes, he published his observation) and write what *Temperature* calls a "Discovery Article" to explain Mpemba's discovery; the journal has many good examples of such articles.[16-18] Good luck!

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