



Reginald G. Golledge (1937–2009)

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Figure 1. Portrait of Reg Golledge (reproduced by permission of Dan Montello)

Remembering Reg Golledge, behavioural geographer

Reg Golledge was a pioneer of behavioural geography, an approach he championed for his entire career. In nearly 50 years of publications, he developed a consistent and coherent theoretical framework to support his view that the best way to understand the geographical world was to understand how people cognized the world around them and made choices and decisions on the basis of such knowledge. Behavioural geography argued that space is not experienced

and understood in a similar manner by all individuals. Instead, each individual possesses a unique understanding of their surroundings, and that this understanding is shaped by mental processes of information gathering and organization. By analysing such knowledge it becomes possible to understand, explain, model and predict human spatial behaviour and to account for why human behaviour did not fit the patterns sometimes anticipated in models of spatial science. The approach developed throughout the late 1960s and early 1970s largely out of a dissatisfaction with the stereotyped, mechanistic and deterministic nature of many of the quantitative models being pursued at that time. As such, it was a challenge to the perceived, ‘peopleless’ geographies of spatial science, while retaining a scientific approach to study.

As the contributions to this forum make clear, Golledge’s contribution to behavioural geography, and Geography more broadly, cannot be underestimated (see also Kitchin, 2004). Over the course of his career he developed a systematic program of research that consistently sought to deepen and strengthen the theoretical and methodological underpinnings and empirical scope of behavioural geography. So, for example, he engaged in wider ontological and epistemological debates within the discipline of Geography, seeking to tighten and advance behaviouralism’s theoretical tenets and to promote it to a wider audience. He developed a number of specific theories concerning the development and structuring of spatial knowledge, processes of spatial choice and decision-making (in different contexts – transportation, residential choice), and environmental learning with regards to different

populations (adults, children, developmental disabilities, visual impairment, men/women). Some of these theories, such as the anchor-point model of spatial knowledge, have been widely engaged with by cognitive and environmental psychologists (see Couclelis *et al.*, 1987). He pioneered, developed and tested a whole series of behavioural measures and analytical techniques including multidimensional scaling, psychometric testing, sketch maps, distance and direction estimates (see Golledge and Stimson, 1997, for review), and championed a move away from the (psychology) laboratory to real world environments, challenging psychologists in particular to model spatial behaviour in naturalistic settings. Finally, he sought to apply his research findings to real world issues such as planning, transportation modelling, and, perhaps most successfully, the development of orientation and communication devices for people with visual impairments (notably tactile maps, a personal guidance system and haptic soundscapes).

Golledge was also important as an institutional and disciplinary builder. He was a key figure in the development of the Geography departments at Ohio State and the University of California, Santa Barbara. He was an active member of the Association of American Geographers, serving as President in 2000, and served as editor of the journals 'Geographical Analysis' (1973–78) and 'Urban Geography' (1978–84). Over the course of his career he organized numerous workshops and conferences, and was tireless at trying to build cross-disciplinary links, especially with Psychology.

Rob Kitchin

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The man who was one with his body

My best friend is no more. In the evening hours of 29 May 2009, at the age of 71 years and 195 days, Reginald Golledge passed away, a unique human being turned into a common mortal, a tortured body escaping into a heaven of

memories, his various achievements projected as shining constellations onto the sky of meaning. And in that sense this walking contradiction died as he had lived, for throughout his professional career no issue was ever more central than the paradoxes of aggregation, more specifically the relation between individual behavior and socio-economic systems, you and me as non-translatable unicorns at one end of the spectrum, us and them as talking lions at the other. Also throughout was the theme of scientific reasoning and institution building, itself a sign that like anyone else he too was a child of his own time-and-place, in the same body the simplest and most complex person I ever knew, a barefoot who never grew up. Built into his sturdy frame was a love of rugby, a team sport he practiced first as a player and eventually as a referee. No fouls taken lightly.

So how did he become what he became, the man who was one with his body? In my mind because he never really left the interior of New South Wales where he grew up, its snakes, kangaroos and hard work for ever etched into his being. Having learned the hard way that the good life he so much enjoyed must never be taken for granted, he eventually accumulated a CV of no less than 70 single-spaced pages, a stunning document of what it takes to make a difference: 16 books, 391 articles (including two in press and four submitted), 296 conference presentations, a multitude of administrative posts and committees, the chairmanship at Santa Barbara and the presidency of the Association of American Geographers among them. The honors steadily came his way, the most highly valued the international gold medal of the Institute of Australian Geographers (the legendary oysters at 'Doyles on the Beach' as a bonus) and two honorary doctorates, one from Simon Fraser University in Canada and the other from the University of Gothenburg in Sweden; getting him dressed up in tails and knotting his white tie for the latter event was indeed a hilarious experience. Most stunning is nevertheless the list of research grants

received, large and small adding up to a sum total of 12,488,818 US dollars and 82 cents, in its absurd precision a measure of the non-negotiable sense of duty that made him who he was.

Equally telling is that all his books were written together with others, most importantly the three friends Les King, Doug Amedeo and Bob Stimson, the latter the oldest and most genuine of his Aussie mates. The majority of the other publications were co-authored as well, not the least with Jack Loomis and Roberta Klatzky, two UCSB psychologists who in the fall of 1984 helped their geography colleague retain his sanity, perhaps saved his life. The outstretched hand was desperately clasped, for in the spring of that fateful year Reg had unexpectedly been struck by a degenerative disease of the optical nerve, a catastrophic event which in due course made him legally blind. An unspeakable tragedy, a living life torn to pieces, an explorer without map and compass, a rudderless ship tossed around on the open seas, a wreck drifting towards the rocks. How could he ever find his way again, how could he ever tell where he was and where he should go? How could he possibly survive?

What the visit by Klatzky and Loomis made him understand was that the help he so sorely needed could come only from himself. What they suggested was in fact that the adversity could be turned into an advantage, that the geographer's earlier work on computational processes, artificial intelligence, cognitive maps, and disabled people could now be put to a real test, he himself his own laboratory, investigator and investigated in the same person. In his own words: 'I was flabbergasted. The thought had never entered my mind. [It] changed my life.' (Golledge, 2002).

With that remark began 25 years of collaborative research into spatial behavior, social psychology, and cognitive mapping, the white stick an extension of everything the big man was, a new field created in the process. Many are the results of those efforts but none more spectacular than the development of a GPS-based

navigation system, a backpack whose tin-voice tells the carrier exactly where (s)he is, when to turn left or right, when to be aware of the approaching curbside. To Reg himself this was an incredibly promising invention, for what it offered to the visually impaired was the prospect of independent navigation, a new sense of freedom. True to that attitude he hated whatever infringed on his integrity, particularly the politically correct who preach identity and condemn difference. It was therefore with great satisfaction that in 2008 he received the Enhancing Diversity Award of the Association of American Geographers.

Hard to believe, but even to him enough was eventually enough, too many cancers, heart attacks, and joint replacements for any body to take. An iron will he had, but nothing was ever more important than the fate of the four children Stephanie, Linda, Bryan, and Brittany, like their father and the huge dog stubbornly themselves. Bravely self-reflective as well, for despite the occasional drops of sadness the vast majority of our shared tears came from the roaring laughter. Setting the stage was a worldwide range of places – Columbus, Ann Arbor, Sydney, Canberra, Palmerston North, Lake Wakatipu, Toronto, Chicago, Goleta, Bellagio, Milano, Paris, Pittsburgh, San Francisco, Uppsala, to name but a few.

Containing it all is one of the most precious things in my possession, a white little stone from the eastern shore of the Tasman Sea, where it was picked up on 6 December 1974, Reg's 37th birthday. Whitebait fritters and Veuve Clicquot.

Gunnar Olsson

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You don't need sight to have vision

Few scholars can be credited with having been instrumental in developing a new field in their discipline. Reg Golledge was one. What has become known as analytical behavioural

geography is synonymous with Golledge. In particular, he was instrumental in developing new theoretical frameworks and methodologies for investigating people's cognitive maps of large-scale urban environments and the wayfinding behaviour of people with disabilities, in particular the blind. The latter was a field to which Golledge devoted himself from the second half of the 1980s after he lost his own sight. His research and publications in these specialist fields attracted wide attention outside the discipline of geography, especially in psychology, but also in health sciences, statistics and transportation.

Golledge was also a fully rounded human geographer with many publications in the fields of economic, urban geography and geographical education in addition to his copious academic outputs in behavioural geography. His service contribution to geography was also immense. That included being President of the Association of American Geographers. He was a successful institution builder, and from 1976 until his death in 2009 he was an instrumental force in the emergence of the Department of Geography at the University of California, Santa Barbara, as a veritable international powerhouse in scientific geography.

Golledge was a social scientist of immense stature, with the excellence of his scholarship being recognized over the last three decades through a succession of some 30 prestigious awards, including honorary doctorates, fellowships of academic associations, and membership of learned academies.

Equally impressive were the attributes of Golledge the man. Reg was a great family man, a devoted husband and father. He was tireless mentor to a legion of students and young faculty members. And he was a loyal friend to many people across the world.

To fully understand Golledge it is important to go back to his roots when growing up as a country lad in Australia. One of five children, Reg was born in December 1937 in Dungog,

then a small dairy town in lower Hunter Valley in New South Wales. His Dad was a railway worker and the family moved around various small country towns. After completing school, Reg went to the University of New England in the country town of Armidale where he completed an Arts degree with honours in Geography after initially having intended to major in History. What a loss to our discipline that would have been! He then did a masters degree in record time in Geography before marrying for the first time and moving 'across the ditch' to Christchurch in New Zealand to be a Lecturer in Geography at the University of Canterbury from 1961 to 1964. Golledge then joined the trail to the United States being trodden by a succession of Antipodean geographers in the 1960s and 1970s, where he undertook his doctorate in Geography at the University of Iowa.

I got to know Reg Golledge in 1960 while a first-year student at the University of New England when he was a demonstrator in Geography. But, more importantly for me, he was my Moral Tutor (New England's quaint system of mentoring undergraduate students) in charge of the town house where I was living. Well he sure taught me a lot about the finer things in life, and we were to become lifelong friends for the next 49 years.

At that time in the early 1960s Golledge was a dashing figure, quite a 'ladies' man' as well as being 'one of the boys'. He had a great sense of humour, was a great practical joker, and was a more than useful drinker doing the rounds of Armidale's 12 pubs. In fact Reg was something of a hero on campus as captain of the Rugby First XV. He was the proud editor of the 'University Rugby Club Song Book', which, he use to nostalgically recall, was his cherished first and arguably most popular publication, but one which a publishing house could not possibly print for fear of prosecution! His competitiveness on the rugby field was to spill over into many other sports including tennis, squash and darts. It was the same determination that was to drive his scholarly achievements.

When Golledge migrated to the USA he was aged 26 and yet to undertake his doctorate, but he had already accumulated 10 publications in journals and two book chapters, and he was a joint editor of one book. Those publications included papers in the international journals *Tijdschrift Voor Economische en Sociale Geografie* and *Economic Geography*.

In the USA, Golledge was quick to develop productive collaborations with fellow graduate students, including some of his fellow expatriates – people like Les King, Bill Clark, Gerry Rushton and Doug Amedeo. He quickly became a significant contributor to the ‘quantitative revolution’ that was under way in geography. He moved to Ohio State University as an Assistant Professor in the Department of Geography in 1967 and became full Professor in 1971 at the age of 34. It was during the Ohio State years when Golledge developed international fame for his research into cognitive mapping and spatial learning, including his ‘anchor point theory’. That research produced a succession of publications in leading international journals, including the *Annals of the Association of American Geographers*, *The Professional Geographer*, *Geografiska Annaler* and the *Journal of Regional Science*, and books on behavioural geography, urban geography, scientific reasoning in geography, and the multidimensional analysis of large data sets.

In 1977 with his second wife Allison, Golledge was enticed by fellow Australian, the late David Simonett, to move west to the University of California, Santa Barbara, where he spent the rest of his career. Their two children, Bryan and Brittany, were born there. At UCSB Golledge continued to develop his research in behavioural geography, in particularly developing experimental and laboratory research designs to investigate the wayfinding behaviour of people and collaborating with statistician Larry Hubert to produce ground-breaking research using randomization procedures to investigate spatial autocorrelation published in

Geographical Analysis, research which was acknowledged by the 1981 Honors Award from the Association of American Geographers. He also began his landmark research into the spatial behaviour of people with disabilities and personal guidance systems to assist blind people.

It is significant that throughout his eminent career Golledge refused to become caught up with the various ‘isms’ that diverted so many human geographers from the mid-1970s, many of whom were to scorn the scientific method embedded in analytical human geography. Golledge clinically destroyed the many criticisms (particularly by British geographers) that were levelled at the behavioural geography research that he had largely pioneered. His rebuttals of those criticisms clearly pointed out the lack of understanding (even ignorance) his critics had of basic concepts in psychology upon which much behavioural research in geography drew. It was also ironic that following his loss of sight in the mid-1980s Golledge’s research was to largely pioneer the investigation of the spatial behaviour of people with disabilities and in particular the development of personal guidance systems to assist the mobility of blind people (Reg hated the use of the politically correct term ‘visually impaired’, particularly when directed at him, categorically stating that he was ‘blind’ not ‘impaired’). Some of his research was also to focus on inquiring into gender-based differences in the spatial abilities of people. But these research thrusts by Golledge and his collaborators were characterized by being firmly embedded in the use of the scientific mode of inquiry using innovative research designs specifically developed to enhance explanation in the study of human spatial behaviours. That was the antithesis of research approaches taken by his Marxist and post-modernist critics which Golledge saw as being self-indulgent and lacking in intellectual rigour, and of being guilty of undermining the development of human geography as a widely respected analytical social science.

A hallmark of Golledge's career was his ongoing and wide collaboration, not only with fellow geographers but also with scholars in other disciplines. I know that one of the things that Reg greatly treasured was the recognition received from psychologists for his scholarly contributions to spatial cognition research.

Reg Golledge's research was supported over four decades by a continuous succession of grants from the National Science Foundation and from other competitive grant agencies. His prodigious research publications record seemed to increase as time went on despite the debilitating loss of sight and a succession of life-threatening illnesses which made the academic task so difficult for the last 24 years of his life. But Reg never complained and became even more determined to overcome each successive setback to his health. That spilled over into his non-work life and was reflected in his love of fishing, following many different types of sports, a love of travel, and an insatiable appetite for fine dining and good wines. Frequently he returned 'back home' to Australia to visit his family in Newcastle, and to meet his many friends. The Golledge-inspired 'long lunches' at 'Doyles on the Beach' at Watson's Bay in Sydney were the stuff of legend.

On 29 May 2009 his ongoing illnesses finally prevailed over Golledge's determination to overcome, and Reg passed away at home in Goleta. The inscription on his tombstone is 'You don't need sight to have vision'.

I was fortunate to be a part of Reg Golledge's life for five decades, both as a work colleague collaborating with him in writing three major books and as a good friend sharing so many wonderful times fishing, travelling, watching sport, eating good food and drinking good wine. Reg was my best mate and I will miss him very much as will so many others who have been privileged to share the warmth of his friendship and the stimulation of his intellect. Golledge was a giant of a man in so many ways.

The Golledge family gave me the honour of making the introductory speech at the memorial wake held for Reg at the Staff Club at UCSB on 7 June 2009. It was a sad but joyous event that lasted for more than two hours and was attended by about 120 people. Many of Reg's friends and colleagues spoke emotionally about the times they spent with Reg and his influence on their lives. The UCSB Chancellor delivered a moving tribute recognizing Reg's remarkable career and detailing his long and distinguished service to the University in so many capacities, which enhances scholarship and collegial life at UCSB.

Bob Stimson

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Reginald Golledge and behavioural geography

In 1984, I was the subeditor for a paper that a geography journal had commissioned from Reg Golledge on the subject of 'teaching behavioural geography'. Sure enough, an envelope arrived in my pigeonhole on the given date with copies of the manuscript enclosed inside. The covering letter, however, came as a shock. In it Reg informed me, in a completely matter-of-fact way, that he had recently lost his sight and that this was the first paper that he had attempted since doing so. He asked for an opinion as to whether it was good enough and was insistent that we gave him an honest answer, because he wanted to know whether he could carry on working (see also Golledge, 1997).

As it turned out, he need not have worried. The resulting essay (Golledge, 1985) was exactly what one expected from its author in terms of quality and content. It supplied a succinct guide to how to teach what was then regarded as a subdiscipline of geography, ably combining statements of principle with a consummate grasp of detail. The proposed syllabus began by emphasizing the origins of behavioural geography as an expression of the potential of quantitative methods and as a response to the

behavioural shortcomings of conventional spatial analytic models. The second part invited students to explore the key psychological variables (perception, cognition and attitudes) deemed to shape the knowledge that individuals hold about the world around them. The ensuing sections outlined six areas of research that would form the course's substantive content. In order, these were spatial cognition, learning and spatial behaviour, activity and action spaces, time path analysis, consumer behaviour, and migration.

Throughout the article, Golledge made it clear that his was not a comprehensive approach to behavioural geography and nor was it meant to be. Behavioural geography, as it emerged in the 1960s, had two parallel streams: one looking to cognitive science to generate theories about how people make decisions and act in geographic space; the other looking to phenomenology and other non-positivist philosophies in order to understand human imagination and experience holistically. Golledge, however, had little taste for the latter approach. Although acknowledging its existence, his preference was for an *analytical* behavioural geography that accepted the rigours of scientific inquiry, took advantage of interdisciplinary exchange of concepts and methods (especially with psychology and mathematics), and systematically explored people-environment relationships in ways that made overt connections with behaviour.

He was unswerving in that preference. His approach firmly favoured 'following principles of logical reasoning about geographic facts (by which to) discover laws . . . which emphasize spatial relationships between these facts' (Golledge and Amedeo, 1968: 760). Doing so permitted a programmatic agenda whereby researchers, in different countries and disciplines, could add incrementally to the stock of knowledge in ways that were replicable and testable. Proceeding on this basis, Golledge, individually and with colleagues, contributed numerous works that helped to establish the nascent field of behavioural geography. Initially concerned with mass

behavioural consumer models (eg, Golledge *et al.*, 1966), he became more interested in individual behaviour and questions relating to retailing, environmental learning and cognitive mapping (Golledge, 1969; Golledge *et al.*, 1969; Golledge and Zannaras, 1973). More subtly, he also advanced the case for behavioural geography through synoptic commentary on the development of the field as a whole (Golledge *et al.*, 1972) and by gathering together collections of research that codified the research frontier (Cox and Golledge, 1969; Moore and Golledge, 1976).

Over time, Golledge diversified and consolidated these beginnings. His writings continued to explore issues relating to spatial cognition, behaviour and choice, but with new dimensions concerned with wayfinding, transportation, geographical information systems and the geographies of disability (Golledge and Timmermans, 1988; Gärling and Golledge, 1993; Golledge, 1999). At their core lay the desire to harness the growing power of mathematical and computational modelling to seek understandings of human spatial behaviour and from there achieve socially useful outcomes. In that context, he became especially interested in the potential of cognitive-behaviouralist research to help those suffering physical disability; an endeavour that culminated in end-products such as the creation of GPS-based navigation systems (eg, Loomis *et al.*, 2001; Marsh *et al.*, 2007). Viewed collectively, these innovative strands of research comprised a towering achievement spanning almost five decades, balancing theoretical understanding, sophisticated quantitative methodology and empirical insight bound together by a consistent analytical approach.

The rapidly changing intellectual climate, however, meant that Golledge's later work attracted far less interest within the mainstream of academic geography. His early research had captured the mood of the times, but yesterday's revolutionaries were being recast as the next era's reactionaries. Mounting attacks from

radical and humanist opponents in the late 1970s, the cultural turn of the 1980s and a root-and-branch rejection of quantification by those who looked for a fresh start for human geography (Barnes, 2009) brought new preoccupations. The net result was that behavioural geography became effectively marginalized and seemingly divorced from the research frontier of human geography.

Reg Golledge was one of the few that fought a sustained rearguard action. The year 1981, for example, saw him denouncing what he identified as ‘misconceptions, misinterpretations, and misrepresentations’ (Golledge, 1981) and jointly editing an overview (Cox and Golledge, 1981a) that addressed the ‘critical juncture’ that behavioural geography then faced (Cox and Golledge, 1981b, xxvi) – albeit as part of a project made awkward by his co-editor’s open denunciation of behavioural geography as ‘bourgeois thought’ (Cox, 1981). Nevertheless, the erosion of the popularity of behavioural geography and its loss of critical mass in its American heartland could not be ignored; a point implicitly admitted by the subtle changes seen in Golledge’s shared textbook projects. *Analytical behavioural geography* (Golledge and Stimson, 1987), written for a geographical audience, was in effect rebranded in an attempt to achieve wider multidisciplinary appeal, first as *Spatial behaviour* (Golledge and Stimson, 1997) and subsequently by the awkwardly titled *Person-environment-behaviour research* (Amedeo *et al.*, 2009). As with advertising, however, the need for rebranding indicates a tired product. Even a cursory glance at the bibliography of *PEBR*, for instance, reveals that its authors had drawn on ever more aged sources, with many of the landmark studies dating from 20–30 years previously. Perhaps tellingly too, one-third of the small number of cited sources dating from the last decade were written by the book’s three authors.

There is little doubt, therefore, that behavioural geography *per se* has run its course, especially given the fact that, with the passing

of Reg Golledge, it has lost its leading practitioner. History’s verdict on its longer-term value, however, is an open matter. Already seen as an important ingredient in the transformation of human geography in the 1960s, it is perfectly plausible that improved historiographic analyses will come to appreciate the pervasive impact of the analytical brand of behavioural geography that Golledge favoured; manifested perhaps in the influence that its underlying objectives, areas of study and methodologies had, directly and indirectly, on subsequent geographical research. If that occurs, it is inevitable that the multifaceted contribution made by Reg Golledge will be readily recognized.

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Reg Golledge as an interdisciplinary geographer: Interactions with psychology

From his days as an undergraduate and graduate student of geography, on through his accomplished career as a research professor, Reg Golledge believed that geographical problems intersected with problems in many other disciplines (Golledge, 2002; 2007). Geographers could therefore benefit greatly by reading the literature of other fields, by learning and applying their methods, and by maintaining scholarly communication with researchers in those areas. This profound interdisciplinarity is one of Reg’s most important and influential legacies. It provided an early and influential template for late twentieth-century geography as a boundary-crossing endeavor.

Reg interacted with a variety of disciplines other than geography, but his deepest and most significant interactions were with psychology, particularly those subfields with mathematical, perceptual, cognitive, environmental, developmental, and educational emphases. As one of the founders of behavioral geography, Reg

appreciated its affinity with psychology and the synergy that would result from greater exchange between these two fields. In this essay, we review Reg's career of contacts and interactions with psychological theories, methods, and psychologists themselves. We describe in detail his extensive research collaboration with psychologists at the University of California, Santa Barbara (UCSB), on problems of human navigation and wayfinding, particularly by the visually impaired.

At the University of Iowa during the 1960s, Reg recognized the need for more developed theory in geography, particularly in his chosen area of spatial choice and decision-making in marketing and consumer behavior. In addition to prominent psychologists such as Tolman, Piaget, and Lewin, he read theorists, such as Simon and Wolpert, who questioned the doctrine of economic rationality so prevalent then. Instead, Reg adopted an approach to decision-making that put people's subjective realities at center stage – the view that decisions depend on people's *beliefs* about reality (eg, Golledge, 1967). Because people's subjective worlds differ, their decisions can differ, even in otherwise identical situations. This was the core insight of *behavioral* geography, the subfield that Reg helped found and consistently popularized throughout his career. At the same time, Reg insisted that the scientific method (often labeled 'positivism' in geography) held out the greatest hope for progress in understanding human behavior and mental life. This put him at odds with various theoretical approaches within human geography but made it very easy to interact with experimental psychologists and others who study humans scientifically.

During his time at Ohio State University (OSU), Reg read the work of mathematical psychologists like Bush, Mosteller, Kruskal, and Coombs, and he participated in seminars that included psychologists. At the 1968 Annual Meeting of the AAG in Washington, DC, he helped organize a paper session that included many of the founders of behavioral geography

and provided the basis for the chapters that made up the first book to explicitly refer to behavioral geography (Cox and Golledge, 1969; a collection of the papers had been printed a year earlier by OSU). Reg contributed a paper on 'The geographical relevance of some learning theories' (Golledge, 1969). Over the next couple of years, Reg and his colleagues and students published their innovative empirical studies of the mental representation of space in urban cognitive maps (Golledge *et al.*, 1969; Golledge and Zannaras, 1970). During the 1970s, Reg started a productive collaboration with Joseph Parnicky, a social psychologist, studying the spatial cognition of people with developmental disabilities.

In 1977, Reg moved to the Geography Department at the University of California, Santa Barbara (UCSB). His early seminar with Waldo Tobler at UCSB on alternative ways to analyze and represent human spatial knowledge at both topological and metric levels had been eye-opening for several psychologists at UCSB, including Bobby Klatzky, sowing the seeds for future interdisciplinary interaction. Reg soon began collaborating at UCSB with Lawrence Hubert, a mathematical psychologist, and Jim Pellegrino, an educational psychologist. Shortly thereafter, he met and began collaborating with Tommy Gärling, a cognitive and environmental psychologist at Umeå University in Sweden, on research examining activity planning and spatial decision-making (eg, Gärling *et al.*, 1994).

But perhaps Reg's most productive collaboration with psychologists at UCSB came in the mid-1980s. This interaction began in earnest after Reg lost his sight in 1983–84. Of course, this loss was a major setback for Reg and, by his own account, threatened to derail his research career. A turning point came in 1985, when he began a collaboration with Jack Loomis and Bobby Klatzky. Jack approached Reg with the idea for a navigation system for the blind using the emerging technologies of GPS and virtual reality. Reg enthusiastically embraced the idea and joined Jack and Bobby in forming a research

project that went on to great success, lasting over 22 years and resulting in a number of influential publications. Reg brought with him his vast knowledge of behavioral geography, spatial cognition, and the emerging field of GIS. The project was a mix of basic research, engineering, development, and applied evaluation research. The basic research began with the question of how spatial cognition in blind people might differ from that in sighted people.

The findings contributed to understanding non-visual navigation in blind and sighted individuals, auditory distance perception, and functional similarities between spatial perception and spatial language (eg, Avraamides *et al.*, 2004; Klatzky *et al.*, 1998; Loomis *et al.*, 2001). The engineering and development resulted in a succession of prototype GPS-based navigation systems for blind people (Loomis *et al.*, 2007). Reg took the lead in developing a spatial database of the UCSB campus, one that was responsive to the scale of information necessary for blind travelers on foot, and overseeing the development of the GIS component (Golledge *et al.*, 1998). In person and in print (eg, Golledge, 2002), Reg attributed the reinvigoration of his research career to the start of this collaboration with Jack and Bobby. We know that Reg was very proud of this body of work and his contributions to it. The creation of a working GPS-based navigation system in 1993 served as an inspiration to other researchers and developers in the field, the applied evaluation research led the way in showing how to evaluate such systems, and the idea of using perceptual spatial displays instead of language led to very effective displays that are preferred by blind people and lead to more efficient travel.

Independently of his involvement with the personal guidance system, Reg pursued other research concerned with improving the lives of those with visual impairments. Because of the overwhelming complexity of existing tactual maps, Reg proposed the creation of tactual strip maps for guidance along specific routes

(Golledge, 1991). By confining the information to the essential information needed to keep oriented along the route, the tactual strip map was a great idea. But it was a bit ahead of its time, being much more suited to computers with access to map information on the internet. Later, this approach became more technically feasible in Reg's Haptic Soundscapes project, conducted with his postdoc at the time, Dan Jacobson. They investigated computer interfaces based on haptic and auditory information that could function for apprehending 2-D shape information, as might be used in acquiring geographical information over the internet.

Other research by Reg and his then doctoral student, James Marston, looked at the use of public transit by blind people. Their several years of influential work included assessing the effectiveness of Talking Signs[®], infrared transmitters placed in the environment, allowing blind people with receivers to locate and identify building entrances, various points of interest, and public buses (eg, Marston and Golledge, 1998). Reg's collaboration with psychologist Jim Pellegrino at UCSB focused on route learning and cognitive mapping by sighted adults and children in suburban neighborhoods (eg, Golledge *et al.*, 1992). This theme was revisited in the 1990s, this time involving blind participants, in his collaboration with psychologist Mark Blades and geographers Rob Kitchin and Dan Jacobson (eg, Blades *et al.*, 2002).

Besides his many research collaborations, Reg promoted the interdisciplinary connection between geography and psychology in a variety of other ways. Reg co-authored several publications on the relations between geography and psychology (Gärling and Golledge, 1993; Kitchin *et al.*, 1997). In 1992, he led the effort to hire Dan Montello, who has a doctorate in psychology, on the faculty of the Geography Department at UCSB, one of two psychologists who have worked as geography professors at research universities in the USA (David Stea being the other). Reg joined the National

Research Council's 'Committee on Support for Thinking Spatially' (2006), chaired by geographer Roger Downs; this committee included, among other people, prominent psychologists Robert Bjork, Lynn Liben, Marcia Linn, John Rieser, and Barbara Tversky.

Reg also organized a number of interdisciplinary symposia and workshops bringing geographers, psychologists, and others together. In 1998, Reg and Dan Montello organized the interdisciplinary workshop 'Scale and Detail in the Cognition of Geographic Information' in Santa Barbara as part of the NCGIA Project Varenus (Montello and Golledge, 1999). The attendees well remember the stimulating, but sometimes frustrating, efforts to communicate across disciplines. An influential meeting was a workshop in Brittany, France, attended by psychologists, neuroscientists, an ethologist, and Reg, representing geography. The workshop resulted in one of Reg's most influential publications, a book on wayfinding behavior (Golledge, 1999). Reg led the way in creating an Advanced Training Institute for the American Psychological Association on 'Geographic Information Systems for Psychological/Behavioral Research'. Mike Goodchild, Dan Montello, and psychologist Steve Hirtle joined Reg as instructors in San Francisco in 2007, and in Santa Barbara in 2008.

Our purpose here has been to recognize Reg's behavioral research, his efforts to help those with disabilities, and his efforts to promote greater scientific exchange between the disciplines of geography and psychology. The word 'recognize' falls short of expressing our deep admiration for Reg's contributions to the fields of behavioral geography and human spatial cognition. Beyond his scientific activities, however, he was an inspiration and a motivating force for many. This wonderful man, who put aside personal travails to work on behalf of his profession and other people with disabilities, will be greatly missed by many in geography and psychology. We were privileged to work with him during his long and productive career, and our memories of

personal and professional interactions with Reg will continue to inspire us.

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