

Pascal Boyer in his introduction, sets the stage for the importance of collective memories in the memories of the self. Williams and Conway deal with the role of memories in constructing the self and with the concept of AM networks. There is a vast depository of episodic and self related memories that are intertwined and trigger each other and play a role in developing our identity (as ancient Augustine, quoted later said). Flash-bulb memories such as the 9/11 WTC attacks, the death of Princess Diana or the assassination of JFK are culturally conditioned and are variable between countries. The age related peaks of personal reminiscences on the other hand are surprisingly similar in all cultures, where such studies are carried out. Bernstein and Bohn deals with life scripts, which are culturally shared expectations. In our society these are commonly experiences in school, with family members, marriage, children and jobs. Conflicts in this script also influence AM. This script of expectations unfolds in a stereotypic time sequence and deviations are notable. Happy and important memories have a peak of occurrence in the 15-30 life periods, while sad or anxious remembrances are more evenly distributed and increase with aging.

The specificity of memories, priming, and the role of emotions in the encoding process are the subject of Schacter at al's more traditional experimental approach, using neuroimaging to demonstrate the fine tuning of neuronal systems, when they respond to previously heard or familiar material. The memory of self has specific neural network activation in relation to structures, processing emotions. This is a stand-alone contribution.

Collective memories and the memory of history are essays comprising a major part of the book, led by Wertsch. Scholarly history has sufficient detachment and makes an effort to see the past from multiple perspectives. Collective remembering on the other hand simplifies and it is often based on myths and shaped by current political and societal considerations. History is far less static than it is conceived. Collective memories however often simplified for political reasons or through social pressures. Even official history is subject to the errors of collective remembering. Historical texts and our temples of history, the museums are repositories of interpreted memories. Many cultures enforce the traditional reiteration of past, biased as it may be, but there are revisionists and reinterpreters of the past in some other cultures such as our own, who are increasing in number and have become very fashionable. Several of the authors in this section are approaching these issues from the sociological and psychological perspective.

Repeated retrieval of collective memories becomes history. This occurs in the classrooms, in the media and in commemorations. Roediger et al review massive repetition vs. spaced retrieval, which may promote retention. Flashbulb memories are so intense and vivid that individuals remember the context for a long time. Collective flashbulb memories are not only important and shocking events, but are frequently reiterated. The subjective aspects, or context seems to be retained better than the core details of the event. Pennebaker and Gonzales also studied historical events that change the life of people and how they are shaped by various factors, such as age cohorts, culture and rehearsal. This group studied internet blogs and chatroom language after the 9/11 attacks. Another interesting study explored what various national student groups considered the ten most important events of the last 100 and 1000 years. The differences are interesting, but not surprisingly the French revolution did not make the American list.

As Ralph Waldo Emerson said : "Memory is the affection- we remember the things we love and the things we hate". The emotionality of events shape their memory and so does the time elapsed and their locale. It usually takes about 25-30 years to achieve a balance of the significance of events. Initially memorials, street names were created for JFK in Memphis, but not in Dallas and Dr. King was memorialised in Dallas before Memphis.

Historical revisionism works both ways and examples of these are studied in the last section of the book. One can learn for instance that the Canadian victory at Vimy Ridge to a large extent was attributable to "British and French artillery support and months of planning" and the quoted author felt Canadian heroism was overestimated and the battle was only part of a larger one. Early memory researchers such as Bartlett studied the "Chinese Whisper Game" effect of how stories get distorted as they are passed on. An interesting recent phenomena are the government apologies for previous injuries to other communities. It is another "reverse", politically correct, manifestation perhaps of the negative "presentism" or exegesis of history from our current perspective. It seems that historical revisionism has no end. Columbus was appreciated little at the beginning, rewarded handsomely for his discovery, than forgotten and later discovered again to become a historical giant, to be re-evaluated recently as an imperialist and the cause of ruin of native peoples.

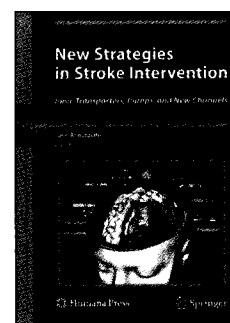
This book is more about how history is constructed than about memory as a neurological phenomenon. It does not update or contribute to the clinical and scientific understanding of the neuropsychological aspects of memory. There are no clinical contributions, although AM has appeared in the clinical literature occasionally. Nevertheless it makes somewhat interesting general reading, while leaving the reader shaken about trusting history, historians or any recollection as a matter of fact. It will be enjoyed by sceptics and anti-establishment activists.

Andrew Kertesz
London, Ontario, Canada

NEW STRATEGIES IN STROKE INTERVENTION. IONIC TRANSPORTERS, PUMPS, AND NEW CHANNELS. 2009. Edited by Lucio Annunziato. Published by Springer. 254 pages. C\$195 approx.

Rated ★★★★★

There are currently no clinical or experimental interventions, other than thrombolysis, which improve stroke outcome, this despite great advances in an understanding of the mechanisms by which ischemia induces cell damage. Thrombolysis has major limitations including amongst others, its limited therapeutic time-window, the requirement for neuroimaging prior to initiation of treatment thereby precluding



initiation of treatment 'in the field', the need for administration by skilled personnel and risk of serious hemorrhagic complications. At present less than 5% of stroke patients are treated with thrombolysis. Neuroprotective interventions aim to limit neuronal damage. If successful stroke neuroprotective interventions are ultimately developed and if particularly these can be administered by EMS personnel at the time of initial interaction with the stroke victim, these would potentially extend the therapeutic window for thrombolysis as well as improving ultimate recovery. Neuroprotective strategies would likely be utilized empirically, sometimes in combination with thrombolysis when indicated.

Numerous trials of potentially 'neuroprotective' agents to date have failed to demonstrate a neuroprotective benefit in stroke patients despite initially promising outcomes in stroke models. The failure of anti-excitotoxic strategies in clinical stroke trials has necessitated a re-evaluation of excitotoxic mechanisms as the major mediator of cellular damage following stroke, as well as leading to an exploration of alternative hypotheses.

"New Strategies in Stroke Intervention" provides a succinct review of several novel concepts which might prove to be of ultimate clinical relevance in stroke management. The hard-covered book, comprising 250 pages of text with a four page index, is multi-authored, and comprises 12 chapters which provide specific overviews of a variety of channels, pumps and ion exchangers which might contribute to brain ischemic damage and which provide potential targets for therapeutic invention. Each chapter follows a similar format, providing details concerning the particular molecular entity under review including molecular structure, tissue distribution, biochemical and electrochemical properties, physiology and pathophysiological relevance to stroke, with further information concerning potential therapeutic pharmacomodulation and clinical trial data if available. Each chapter provides an index typically listing 50-150 references. The information provided will be understandable to clinicians who might not have extensive genetic, molecular or biophysiological or pharmacological backgrounds.

Initial chapters include an introductory review of ionic dysregulation in brain ischemia and a discussion of why current anti-excitotoxic interventions have failed. Subsequent chapters include discussions of mitochondrial channels, endoplasmic reticulum calcium homeostasis, $\text{Na}^+/\text{Ca}^{++}$ exchanger, $\text{Na}^{++}/\text{H}^+$ exchanger, Na^+/K^+ ATPase, acid-sensing ion channels, TRMP7 channels, voltage-gated Ca^{++} channels and K^+ channels. The final chapter provides a tabulation of pharmaceutical trials targeting these various molecules including the status of these trials at the time of publication, treatment time from onset, and a brief commentary concerning outcome, adverse events and trial problems. The majority of chapters provide one or two figures, typically illustrating molecular structure or biochemical/pathophysiological pathways; figures are not indexed.

The publication will be of particular interest to Stroke clinicians and Fellows and to other Neuroscientists engaged in brain ischemia research.

*Christopher Voll
Saskatoon, Saskatchewan, Canada*

THE MYSTERY OF YAWNING IN PHYSIOLOGY AND DISEASE. FRONTIERS OF NEUROLOGY AND NEUROSCIENCE - VOLUME 28 VOLUME 28. 2010. Edited by Olivier Walusinski. Published by Basel, Karger. 159 pages. C\$200 approx.

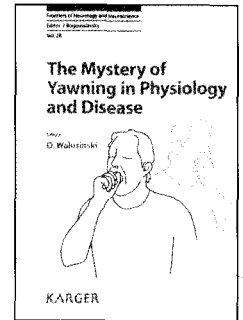
Rated **UNAVAILABLE**

This book is Volume 28 in the series 'Frontiers of Neurology and Neuroscience' and it represents a summary of current knowledge about yawning, with contributors from eight countries under the editorship of a French primary care physician who himself contributes five sections including an historical survey.

It has long been accepted that yawning is a phylogenetically old behavior exhibited by humans, non-human primates and other mammals, birds and reptiles; that it is frequently contagious; and that it is especially associated with boredom. Yet, as the title of the book indicates, the function of yawning remains a mystery. In seeking an answer to this, data about its relationships and antecedents need to be reconciled. From various chapters, one learns that yawning is seen in fetuses after 12 weeks gestation and has been claimed to be associated with hunger, thirst, the need for physical love, boredom, low vigilance; thinking, witnessing or reading about yawning; awakening, recent fearfulness, cerebral hyperthermia (?where) and various disorders such as intracranial hypertension, after stroke, during opioid detoxification, as portents of seizures or migraine attacks, and in tic disorder and the Marin Amat syndrome, while it is uncommon in people with Parkinsonism or autism spectrum disorder and in castrated male rats (though testosterone restores that function to them.) Pontine, mesodiencephalic (mainly paraventricular nuclei) and prefrontal cortical disorders have all been incriminated in causation, and the behavior has been shown to require the activation of at least 11 neurotransmitters or neurohormones, though D3 receptor activation seems to be absolutely necessary. The occurrence of associated movements in hemiplegic limbs during a yawn demonstrates its dependence upon more than one motor pathway. Dr. Walusinski has coined the term 'parakinesia brachialis oscitans' for this phenomenon; only time will tell if this finds favour.

Opinions here seem to differ as to the roles of yawning as an erotic manifestation and in cortical arousal, but a consensus is that at least contagious yawning (discussed at length here in three chapters) is a primitive expression of social cognition (although I yawned repeatedly while reading the book in the sole company of my black Labrador, who yawned empathetically with me.)

This book will appeal to a limited readership, but it does nicely gather together many (but varied) opinions on the subject and will be absolutely invaluable to anyone starting inquiry in this field. The word for the scientific study of yawning is 'chasmology'. Ignoring the suggestive association of the words 'yawning' and 'chasm' in relation to our knowledge of the teleologic function of this activity, I have to say that I finished reading the book feeling like Dylan Thomas did after receiving from his aunt at Christmas one which told him everything he wanted to know about wasps - except why.



*William Pryse-Phillips
St. John's, Newfoundland, Canada*