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Cover Image: A praying mantis dons 3-D glasses in a recent study on binocular vision from Jenny Read's vision lab. For more information, you can check out [the paper in Scientific Reports](#), or visit the [lab web site](#).

Thank you to our contributors!

Have an idea for the newsletter?

Letters and comments welcome.

Editor: Alan M. Daniel

Phone: 304-804-4567

E-mail: alan.daniel@glenville.edu

Stanley (Stan) Kuczaj was a larger than life personality, leader, researcher, and mentor. When he passed suddenly on April 14th, 2016, the field of comparative psychology lost much more than a prolific and innovative researcher. Stan “the man”, as he was known by colleagues and friends, served as chair of the psychology department at the University of Southern Mississippi (USM) for over a decade, where he led his colleagues through many difficult times, including the onslaught of Hurricane Katrina and a troubled presidency. His leadership was decisive, insightful, and often times punctuated with his trademark sarcastic humor. He had the rare capacity to make unpopular decisions without losing the high regard of his colleagues. Although he was not chair at the time of his passing, he was deeply involved in many other significant leadership activities in his field. For example, he was President of the Society for Comparative Psychology and Behavioral Neuroscience, Division 6, of the American Psychological Association (APA) and editor in chief of the journal, *Animal Behavior and Cognition*, which he founded two years earlier. He was also a Fellow of the American Association

for the Advancement of Science, APA’s Divisions 3, 6, and 7, and the Psychonomics Society. He was a founding member of the Comparative Cognition Society and a charter fellow for the Association of Psychological Science. He was recently selected to be the editor-in-chief at the Oxford University Encyclopedia of Mammalian Social Behavior. He had served as Editor-in-chief of the *International Journal of Comparative Psychology* as well. Prior to arriving at USM he had served as chair at Southern Methodist University. These are just a few in a long list of celebrated accomplishments and positions.

Born on October 20th, 1950 in Jersey Shore, Pennsylvania, Stan received a B.A. in Psychology from the University of Texas at Austin, and his doctorate (in 1976) from the University of Minnesota’s Child Psychology program, working under Michael Maratsos. He was awarded the Boyd R. McCandless Young Scientist Award from the APA in 1980. His early work, which examined the emergence of language in human children (including his own!) received wide acclaim. However, Stan is perhaps best known as the director of the internationally renowned Marine Mammal Behavior and Cognition laboratory at



Stan in 2015 surrounded by students from 1997-2015. Photo by L. Highfill.

USM where he mentored dozens of interns, undergraduate and graduate students, who came from around the world to take advantage of a unique opportunity to study marine mammals from a variety of perspectives and focal topics. Stan's connections and perseverance provided students with opportunities that do not exist elsewhere, and his death serves a significant blow to the future of marine mammal research. At the time of his passing, there were 15 budding scientists enrolled as graduate students in his lab. Along with their many predecessors, these mentees will carry on his legacy and add to the library of more than 125 peer reviewed publications that Stan co-authored.

Despite his success, Stan was warm and approachable and welcomed conversations with anyone he encountered. He can easily be pictured in flip flops and

shorts, surrounding a friend with a sideways hug. His distinctive gravelly voice can be heard offering succinct advice and cynical insights. He was simultaneously an adventurer who embraced new experiences and opportunities, and a realist who could place any situation in context and put others at ease. Stan lived life to the fullest, inviting others into his circle to share his enthusiasm for animal research. His recent interests were evolving to include the study of play and welfare and his contributions will no doubt continue to inspire others to carry on in his spirit.

Stan was preceded in death by his mother, Rose Kuczaj; his father Stan Kuczaj; his brother Keith Kuczaj; and his son, Ben Kuczaj. He leaves behind a son (Abe), four grandchildren (Harrison, Hudson, Cooper, Carter), and two sisters (Karen, Faith).





Zing Yang Kuo (Part 1)

Gary Greenberg, PhD

(Excerpted from Greenberg, G. & Partridge, G. (2000). Prologemena to Praxiology redux: The psychology of Zing-Yang Kuo. *From Past to Future: Clark Papers on the History of Psychology*. Vol 2(2). *From instinct to epigenesis: Lessons from Zing-Yang Kuo* (pp. 13-37).

At this early stage of the 21st century, we find our discipline at a watershed. Developments in molecular genetics, developmental and comparative embryology, and neuroscience over the last few decades have greatly enhanced our understanding of how biology is related to behavior as a set of participating and not causative factors. Advances in conceptual and theoretical frameworks have allowed for the beginning of a synthesis of biological level factors with interpersonal and social ecological factors. Coupling these theoretical advances with increased computing power and powerful analytic methodologies ranging from structural equation approaches to nonlinear dynamics and complex systems theory has resulted in a psychology at the precipice of a major paradigmatic shift.

Reading the works of Zing-Yang Kuo in the context of these times for psychology we refer to the words of a learned professor to his young graduate student: "if you want new ideas, read old books," for Kuo's work in many instances presages the cutting edge advances in developmental and comparative psychology. Indeed, much of his writing is so contemporary and salient one may forget that much of it was written a century ago. Kuo began his career at a time when biology and psychology were in their infancy and flush with new and competing philosophical and theoretical ideas. In biology, the full force of Darwinian evolution by descent was taking shape and the rediscovery of Mendel's work was leading towards the neo-Darwinian modern synthesis. Prominent scientists such as Woodger (1929) and Needham (1929) were developing a uniquely biological philosophy. On the horizon were similar efforts by psychologists.

Kuo's writing falls into two distinct periods. The first ranges from the early 1920's to the late 1930's. During this time, most of Kuo's writings focused on general philosophical, theoretical, and methodological statements concerning the study of behavior. He also conducted his important studies of the prenatal development of chickens. The second period (Part 2 in the next Newsletter) falls between 1960 and 1967. During this latter period Kuo developed three general theoretical principles fully discussed in his book, *Dynamics of Behavioral Development*. The three theoretical principles

outlined in this latter book are the theory of behavioral gradients, the theory of behavioral potentials, and his organizing framework of behavioral epigenesis, which is today among the important topics not only in biology but in psychology and developmental science as well..

Reading Kuo it is easy to get the impression that he was a behaviorist. Indeed, many of his criticisms of the psychology of his day were framed in a behaviorist framework. Thus, he argued forcefully for an objective science of behavior, he took strong positions against the introspection approach of structuralists, he went so far as to point out that while he was a student of Tolman's he in no way adopted his cognitive way of thinking. Yet, even early in his career, Kuo became critical of behaviorism for not ridding itself of traditional psychological concepts and adhering to its objective ideals.

Kuo's writing spans some five decades (1921 -1970), beginning with the very important stage setting paper of 1921, "Giving up instincts in psychology," and concluding with his equally important book of 1967, *Dynamics of behavior development*. All the remaining of his 33 papers can be seen as steps leading directly from proposals and ideas first presented in 1921 and elaborated into one of the few systematic theories of general psychology of the 20th century. The last paper he wrote in 1970 was fittingly included in a paean to T. C. Schneirla, the only other comparative psychologist of the 20th century who was devoted to developing a unified theoretical position for comparative psychology. Kuo, and the psychologists he influenced, worked from an anti-hereditarian, developmental-contextual perspective that is only now being widely appreciated in the discipline.

Kuo's Anti-Instinct Position

Kuo began publishing in 1921 when psychology was a far different enterprise from what it is today. While scientific psychology was in its infancy in Kuo's day the exact nature of the scientific practices of the discipline had not been worked out in any consensus form by 1920. Indeed, it is possible to argue that it is only at the end of our first 100 years, at the beginning of this new century, that this still young science has at last worked out the details of conducting psychology as a natural science. In 1920 psychology was very much influenced by the idea of instinct; that much of animal behavior

was inherited, as was much of human behavior as well. Kuo's first paper (1921) argued forcefully against this idea. Though he was certainly not the only anti-instinct psychologist writing at the time, he was arguably the most strident. There are several reviews of the gestation of the instinct concept, among them by Beach (1955) and Diamond (1973).

It comes as no surprise that Kuo could not find agreement on the definition of the instinct concept in 1920. Psychology has been plagued with this problem of defining its terms and concepts for all of its 120 year existence – is there yet agreement about the meanings of intelligence, mental illness, aggression? However, for argument's sake, Kuo adopted a definition that seems to have persisted until the idea was formally described and defined by the Nobel laureates in ethology, Nikolas Tinbergen and Konrad Lorenz.

Citing Parmelee (no date), Kuo writes, "An instinct is an inherited combination of reflexes which have been integrated by the central nervous system so as to cause an external activity of the organism which usually characterizes a whole species and is usually adaptive (1921, p. 646; cited from Parmelee, *The science of human behavior*, no date). That is, instincts are species specific, biologically adaptive, fixed and stereotyped, and triggered by specific stimuli only. Compare this to the definition of classical ethology of the mid 20th century, that instincts, as inherited behavior patterns, are: characteristic of the species they appear in; stereotyped and constant in form; behaviors which appear in animals isolated from conspecifics; and which appear without practice, fully formed when first triggered by appropriate sign stimuli (Hess, 1962).

Instinct theory, that behavior was inherited, was part of scientific psychology from its inception. Kuo tells us that though long relegated only to animals, it was William James who reintroduced the inheritance of behavior to human psychology. The impact of James' chapter on "Instincts" in the *Principles of psychology* was enormous and many of his contemporaries expanded James' ideas "with abandon," according to Harry Harlow (1969). References at the time to instincts were not to reflexes, but rather to complex coordinated behaviors: climbing by children, fear of strange men, pugnacity and anger

(James; Harlow, 1969); human character and the human mind (Thorndike; Kuo, 1921); business acumen, religion, and "every other affair of life" (McDougal; Kuo, 1921, p. 646). As Kuo points out in a remarkably contemporary sounding paragraph, human behavior, our social institutions, religious motivations, social unrest, and the labor movement "are to be explained in terms of instinct" (1921, p. 645). Some currently ascribe to the genes such complex human behavior such as television watching, divorce, what we like in a mate, murder, religion (Horgan, 1993, 1995).

Given Kuo's conceptualization of psychology it is not surprising that his very first publication was an argument against instinct theory. It is noteworthy that he wrote his first paper as a senior undergraduate at Berkeley, as astonishing an accomplishment for an undergraduate in 1921 as it is today (Gottlieb, 1976). His first argument against instinct would be elaborated in three additional papers (1922a, 1924, 1929b). Of course, these criticisms of instinct theory have meaning only in the context of Kuo's definition of psychology as "*the science which deals with the physiology of bodily mechanisms involved in the organismic adjustments to environment with special emphasis on the functional aspect of the adjustment*" (1924, p. 427, italics in the original). The subject matter of psychology, behavior, what an animal does in response to a stimulus, "is solely physical and mechanical events." (1924, p. 427)

"Instinct theory, that behavior was inherited, was part of scientific psychology from its inception."

Kuo posited several criteria for rejecting the hereditarian view in psychology:

1. As we have already stated, there was no agreement in 1920 as to the precise definition of instinct.
2. The acquisition of so-called instincts. Kuo believed that a new born infant acquires its diverse behavioral repertoire gradually through its life. During development,

if the psychologist looks carefully, he will discover that factors other than instinct are responsible for the acquisition of all behavior.

3. Instincts imply purpose and teleology. As discussed below, Kuo rejected these concepts.

4. Methodological limitations of the genetic method (not genetics as we understand the term today, but rather an observational approach to development) lead to labeling a behavior an instinct merely because we observe it to occur within a species. "But, a careful analysis will show that the members of a species have similar reactions, not because they have inherited the same instincts, but rather, because they have inherited the same action system and live in a similar environment" (Kuo, 1921, p. 652).

5. Instincts are biologically adaptive. This is still a fundamental principle of hereditarian psychology. Evolutionary psychologists today propose that *all* behavior is adaptive, it being the result of Darwinian evolution. Just as cogent arguments are made today against this position (e.g., Gould, 1997a,b), so did Kuo: "It will be very ridiculous to say that the young infant attempts to grasp the fire or a harmful snake, when presented to him, because such a reaction is useful to the organism.... To say that the so-called innate responses of the young human organism have biological value is to overlook the fact that from the moment that the child is born it is taken care of by society," that is, provided a stimulus world within which to develop (1921, p. 654).

What, then, was Kuo's alternative to the hereditarian approach? Crediting Watson for the idea, Kuo noted



Department of Animal Behavior - American Museum of Natural History, ca 1987

Gary Greenberg, Kathy Hood, Leo Vroman, Jay Rosenblatt, Tineke Vroman, Peter Gold, John Gianutsos, Ethel Tobach, with Lester Aronson at his desk.

(1924) that the newborn comes into the world with a huge repertoire of individual motor reactions, the result of spontaneous neural and muscular activity and of random acts. These "units of reaction," are muscular movements of parts of the body which occur prenatally. Every movement prior to birth occurs in an environment rich with stimuli and these stimuli are responsible for new motor acts, each of which then stimulate subsequent acts, etc. The new born is extremely active and easily aroused, conditions which favor exploration and new stimulation, in turn leading to new behaviors. Except for vegetative acts (metabolic activities such as heart beat, gastric motility, breathing) no inborn behavior is adaptive or purposive. After birth these motor acts are constantly organized, reorganized, and integrated during the life history of the organism. Walking, for example, involves no new motor acts that the infant has not already engaged in. Rather, walking requires the coordination and integration of the legs, feet, head, trunk, eyes, and more, as well as the maturation of the muscular and skeletal systems. All complex behavior can be understood this way as consisting of new organizations and integrations of old behavior units – organization upon organization upon organization. The new in a new habit is the new combination of old reaction units. "The development of human behavior is essentially the increase of complexity in the organization of reaction systems" (Kuo, 1921, p. 663).

There is much that contemporary critics of hereditarian psychology will recognize in the writing of Kuo more than half a century ago. To be sure, we have learned a great deal since then, but his prescriptions remain the same. Little of what he had to say about the origins of behavior can be rejected today.

The genesis of the cat's response to the rat

Not content to merely make anti-hereditarian propositions about behavioral origins, Kuo went on to provide empirical verification of his views. The first series of experiments he reported (1930, 1938a) addressed the question, "Is a cat a rat killer or rat lover?" Rat killing by cats meets all the criteria of an instinct. It is characteristic of all cats, is adaptive, stereotyped, and specific to a particular stimulus – rats. It was not even denied by Kuo that some cats can do this without specific training.

Thus, the purpose of his investigations was not to determine if training was necessary for rat killing, but, rather, to "manipulate the conditions in which the kitten is made to live so as to see what variations in its behavior toward the rat might be brought forth" (1930, p. 2).

Kittens were raised in nine conditions: 1. In isolation, kept from all animals after weaning; 2. In a rat-killing environment, with their rat-killing mothers; 3. In the same cage with different kinds of rats until 4 months of age; 4. As vegetarians and non-vegetarians; 5. Satiated or 12 hours food deprived at the rat-killing test; 6. Given specific rat killing training; 7. Participating in rat-killing with other cats; 8. Tested with three species of rat to determine species preferences in killing (It is curious that Kuo identified the three "rat" species as an albino rat, a wild gray rat, and a dancing mouse. This in no way impacts on the results of this research); and 9. Training kittens to fear rats.

It is of interest to note that in reporting the results of all his experiments Kuo used the simplest of statistical analyses, percentages and individual data; no inferential statistics, no null hypothesis testing. Kuo's conceptions of behavior and resulting hypotheses are as complex and sophisticated as any in contemporary studies of behavior and seemingly incapable of being tested without equally sophisticated analytic techniques. However, in science, method is more important than statistical technique. Indeed, much of the sophistication of current statistical analysis is designed to address deficiencies in method. Kuo's analysis of his results emphasize the fact that a clever experiment is often more valuable for answering a well thought out question, than it is for its complex statistics.

The main features of his results were:

1. In the first, isolation, experiment, 11 of 20 kittens did not kill rats when tested later. Kuo concluded, "Many psychologists believe that an instinct is universal in a species. But...11 kittens out of 20...did not seem to possess the rat-killing instinct" (p. 8).

2. Kittens which watched their mothers kill rats, did so themselves and always killed the species they observed their mothers kill. Three of 18 kittens did not kill rats in this condition.

3. Of those kittens raised with rats only three of 18 killed rats at the test, and they did not kill the species or individual they were raised with.

4. Kittens reared in isolation can be later trained to kill rats (9 of 11), while those reared with rats apparently cannot be so trained (1 of 15). Some kittens in this experiment ate rats even having never seen that occur, suggesting that rat eating can develop without any *obvious* reinforcement. The key term here is *obvious*, since Kuo always believed that some stimulus or experiential condition was at the foundation of every behavior.

5. Being raised on a vegetarian diet reduced rat eating, but not rat killing.

6. The size of the rat affects the age at which rat killing appears. Young kittens kill smaller rats before earlier than they do larger ones.

7. Kittens reared with albino rats killed the other two species but not albinos.

8. All species of rats were killed, showing no innate tendencies to kill a particular species of rat.

9. Kittens kill and eat what they see their mothers kill and eat.

10. Kittens do not kill the species of rat they are raised with.

11. Larger rats evoke different responses from the kittens than do smaller ones. More hostile and negative behaviors were displayed to the larger than to the smaller rats, whereas smaller rats evoked playing behavior from the kittens.

12. 66% of all rat killing was done by kittens raised in the rat-killing environment; only 5% by kittens raised with rats.

13. Three kittens protected the rats they were raised with; some kittens apparently learned to "love" their rats (Kuo's term).

14. Only 3 of 16 kittens could be conditioned to fear rats; 5 kittens ran from the box they were shocked in during fear conditioning, but not from the rats.

15. Kittens raised not only with a rat, but in social grouping with two or three other kittens, were tolerant of

rats, though not as attracted as they had been in the earlier one kitten-one rat rearing situation. On the other hand, all of the kittens seemed to form attachments to the other kittens they were raised with.

16. Kittens killed and ate hairless and shaved rat pups, but not unshaven pups.

17. Kittens raised for 6 months with sparrows ignored them for the first two months. They subsequently followed, caught, played with, and killed flying sparrows.

18. These same kittens reacted with indifference to sparrows in a garden setting.

This is an impressive set of conclusions, even by today's standards! In one series of experiments Kuo was able to demonstrate the extreme malleability and plasticity of behavior that is characteristic of a species. The implication of this work is enormous. *It shows quite clearly that an animal comes into the world with the potential to behave, if a cat, in typical cat fashion, or, depending on its experiential and stimulus history, in extremely atypical fashion.* Can there be a stronger demonstration against the inheritance of behavior? In summing up this work, Kuo says,

"To me, the organismic pattern...or bodily makeup and the size should be sufficient to tell why the cat behaves like cat, the tiger like tiger or the monkey like monkey. The cat has a cat body and hence the rat-killing behavior; the tiger has a tiger body, and hence man-killing behavior. The chimpanzee has a chimpanzee body, and so uses sticks and does things almost human....But the cat is a living machine; it grows and changes; it has a life history. Its behavior is being modified from the moment of fertilization to the point of death, and is modified according to the resultant forces of environmental stimulation, intra-organic as well as extra-organic. In other words, the kinds and range of potential responses of an organism are determined by its bodily size, and especially its bodily make-up or organismic pattern, while its actual responses are determined by its life history (1930, p. 33)."

This is a crucial anticipatory statement of what Kuo will later refer to as the "principle of behavioral poten-

tials" discussed in a later section of this paper.

Prenatal Behavioral Development

Kuo was a pioneer in the study of prenatal behavioral development which even 30 years after his work still was little studied (Gottlieb, 1970). His efforts paved the way for later researchers in this area such as Gilbert Gottlieb (1971, 1973, 1976) and William Smotherman (Smotherman & Robinson, 1988, 1998). His findings on chicken embryo development (1938b; 1939, b, c) stand as an outstanding contribution to our understanding of the significance of prenatal events to later behavioral development. As we have pointed out in discussing Kuo's criticisms of instinct, he believed an organism was born with a repertoire of reaction units which would become components of complex behaviors and which could be reorganized and integrated repeatedly, to form new complex behaviors. The only thing new about behaviors developed after birth, then, was in the combination and the sequence of these reaction units acquired during embryonic development. It is in this series of experiments that Kuo attempted to provide empirical verification of this idea, of the prenatal origins of behavioral units which would be subsequently available to be utilized functionally at birth.

Kuo said several times that the work of the psychologist begins where that of the instinct theorist ends. The hereditarian psychologist begins to examine behavior after the animal is born. But Kuo understood the great significance of prenatal events in influencing postnatal behavior. If every behavior had an experiential history, then the reaction units present at birth must also. How, though, to study prenatal events? Kuo believed that since the procedures used by the embryologists of his day presented an extremely unnatural environment, i.e., an extracted and incompletely formed embryo in a dissecting pan, the behaviors studied must also be unnatural (1932c). Thus, Kuo commented that Coghill's studies of *Ambystoma* suffered from making no reference whatever to the organism's environment. And, of those studying mammals he said, "Those who have worked on the behavior of the mammalian fetus...removed the fetus from the uterus and gathered fragmentary information concerning its bodily movements...without noting the effect on behavior of the removal of the fetus from its

normal fetal environment after the experimental delivery" (1932c, p. 245).

What was needed was a procedure which allowed observation and manipulation of the embryo without disturbing its normal environment. After experimenting with several techniques Kuo settled on a procedure which not only did not kill the embryos but also provided the least interference with normal functioning. A window was carefully cut into the shell of chicken eggs which was carefully peeled away so as not to disturb the underlying membrane. The membrane was painted with a thin layer of melted petroleum jelly which made the ordinarily opaque membrane rather clear, much as the glass in a shower door becomes clear with moisture on it. This allowed Kuo to observe some 3000 (!) developing chicken embryos from fertilization to hatching. While he experimented on hens, pigeons, and ducks, he presents only data from chickens in these papers. He reported findings on ducks in a later collaboration with Gilbert Gottlieb (Gottlieb & Kuo, 1965). Except for obvious species differences (e.g., size, developmental timing) results with ducks mirrored those reported for chickens. Embryonic observation windows are shown in Gottlieb's article elsewhere in this issue.

**"Kuo observed
3000 develop-
ing chicken
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In selecting birds as a model for this series of experiments, Kuo noted that the environmental stimuli influencing the embryo's activities was complex and included extra embryonic membranes, shell membranes, the egg shell, yolk, and albumin, fluids in the extra-embryonic cavity. To study the development of the embryo outside the egg was to study it in an artificial environment completely devoid of these normally occurring environmental factors. The studies he conducted were laborious and the results extensive. He not only observed, he stimulated and measured reactions, some gross, some local and small, to compare his findings with those of others working with different species.

Prior to Kuo's work, one could safely say that pecking for food by newly hatched chicks was an instinct. It is characteristic of the species, since all chickens do it; it is constant and stereotyped in form because all chickens do it the same way – they raise and lower their heads, open and close their beaks, and swallow, in a coordinated fashion; it appears without practice – the first time the chicken sees the grains it pecks at them, the grains acting as a specific or sign stimulus for the pecking behavior; and it appears in animals isolated from conspecifics (in their shells) and thus deprived of any opportunity to imitate this behavior. But, as Kuo undoubtedly believed, things are not always as they seem and patient, careful observation will always reveal some other factors at work. In the case of observations of a developing chicken embryo, what is to be seen is non-obvious, and so new techniques are required.

In looking at the developmental sequence of the chick embryo Kuo made the following observations:

1. Because it is a bird developing in an egg, the head develops resting on the heart, a function of its phylogenetic standing as a bird;

2. When the heart begins to beat, as early as 13 hours into development, the head resting on the heart is forced to move up and down passively in response to the expansion and contraction of the beating heart; these head movements appear on days 3 and 4 of development.

3. Food getting activities, e.g., opening and closing of the bill, thrusting and clapping, etc., occur on the 6th or 7th developmental day. Of course, these are not actually pecking movements, since there is nothing present to peck at. "But who can deny that the opening and closing of the bill, bill thrusting and lifting and bending of the head which appear as early as the third or fourth day of incubation are primordial movements which after

hatching become component parts of pecking reactions?" (1932d, p. 113)

4. Beak opening and closing is accompanied by swallowing of surrounding fluids.

To summarize, Kuo observed that long before the very life of a baby chick depends on its being able to lower and raise its head (in response to a grain of food), open and close its beak, and swallow, in a coordinated fashion, i.e., engage in food getting behavior, the baby chicken has already done those very same things. We fully agree with Kuo's assessment that, "The data ... can not fail to show the tremendous influence of prenatal development upon postnatal behavior" (1932d, p. 120).

It is important to underscore that this statement was based strictly on observation, not on mere experimental manipulation.

Of course, one may question why the chicken initially pecks at the grains. T. C. Schneirla, a later proponent of Kuo's approach, provided a means of addressing this question in terms of his "approach-withdrawal hypothesis (AW)" (1959), which suggests that early in their lives, newly born animals make approach responses to weak

stimulus sources and withdrawal responses to intense stimulus sources. To a baby chick, a kernel of grain is a small or weak visual stimulus (subtending a small retinal area); the chick thus approaches it, but lacking arms and hands can only explore it with its beak. It tastes good and the chicken is reinforced for subsequent grain pecking. The chick is also attracted visually to its own fecal matter, also a small round visual stimulus. These pecks are accompanied by obvious distaste reactions – the fecal matter is an intense chemical package – and the chick subsequently withdraws from its own feces. This analysis is lent weight by an experiment (Wallman, 1979) in which the feet of newly hatched chicks were fitted with "booties" which prevented them from seeing their own toes and claws, also small visual stimuli. These animals were poorer at pecking small mealworms

"The feet of newly hatched chicks were fitted with 'booties' which prevented them from seeing their own toes."

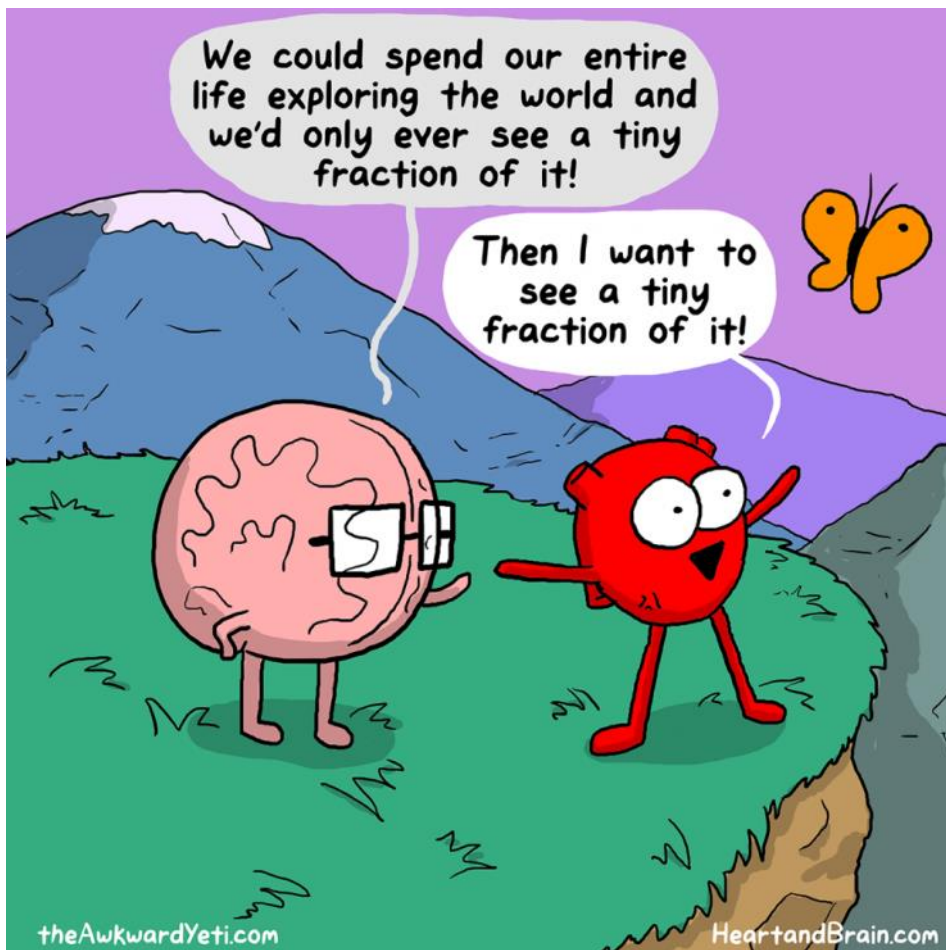
than were undisturbed chicks. Apparently, experience with naturally occurring small visual stimuli (the chicks' own toes) is a prerequisite for successful food getting. It is worth noting that in his later writing, Kuo acknowledged the significance of Schneirla's AW formulation (Kuo, 1967, p. 125).

Is food getting by chickens an instinct? Unless one conducts observations such as these we are forced to conclude so. This is why Kuo referred to instinct psychology as a "lazy" science and why he said his work began where the instinct psychologists' ended. Rather than examine newly hatched chicks (the genetic method of his day) to determine the origins of pecking behavior, "The real nature of behavior can not be understood un-

less its underlying physiology and *the entire developmental history* are known" (1932d, p. 120, emphasis added). Who today would deny the truth of this statement? What is often neglected, even by contemporary researchers, is that *self-stimulation*, such as that which occurs in the developing chicken or duck embryo is an important factor in the establishment of behavior patterns (Gottlieb & Kuo, 1965; see also Gottlieb's contribution in this issue, regarding the background of self-stimulation). Kuo's work does not demonstrate that behaviors are learned in the egg. Rather, these activities in the egg are "non-obvious experiential precursors" of later behavior.



[The Awkward Yeti](#)



Council report for APA convention Denver CO, 8/3 and 8/5/16

Prepared by **Mark Krause, PhD**, Division 6 council representative

First, kudos to Allyson Bennett and Jennifer Vonk for assembling a great Division 6 program for the Denver APA meeting. I know we all carried heavy hearts as we continue to mourn the passing of Stan Kuczaj. He was sorely missed at the meeting. I was impressed by the work that the executive committee members did to honor him, and also to make the adjustments needed to keep our Division on track.

The APA Council of Representatives met for a day and a half during the convention. Colorado governor John Hickenlooper addressed council to start things off. He spoke about depression, his own experiences with it, and how preventing and treating mental illness must be a priority in Colorado and our country. Gov. Hickenlooper's warm greeting and message aside, I should mention that issues pertaining to mental health were back burner at the Denver Council meetings. As with Toronto and the

winter council meeting in Washington DC, the Hoffman report and its aftermath dominated our time and deliberation. On the table was a measure that would grant military psychologists the right to provide mental health care to detainees held at unauthorized sites such as Guantanamo Bay (e.g., sites that withhold protections of the U.S. Constitution). This would alter the major motion in Toronto last year, which banned psychologists from having any involvement at these sites (NBI #23B). Discussion of the revised motion will continue in the winter 2017 meeting. Ultimately the wording of the proposal did not have the clarity that Council would like to have seen, especially for something as consequential as this. The sponsors of the motion were amenable to postponing a vote. To be continued... ad infinitum it would seem.

There was significant concern among Council members that the public would perceive the motion to allow

military psychologists access to assist detainees as undermining NBI #23B. Within hours of adjourning the Council meeting on August 3rd, Physicians for Human Rights issued a statement claiming that the APA was seeking to roll back its anti-torture stance. PHR also repeated the common falsehood that the APA sought to collude with the CIA in policies that allow torture of detainees (A similar, and terribly written article by the Colorado Independent, soon followed). APA CEO Cynthia Belar promptly issued a letter to both parties correcting their mistakes and requesting prior consultation with APA to ensure factual accuracy. What further troubles me is that someone in the Council meeting room took it upon themselves to funnel information to PHR (and others) with, possibly, their own incorrect interpretation of events.

Based on conversations I have had with fellow council members, voiced on the floor and via the council listserv, it is clear that many of us believe that the best way forward is to tackle new initiatives and show APA members and the broader public that we have responded to Hoffman report issues and are ready to move forward. Those who have grievances about the Hoffman report (Google "Hoffman report tolling agreement" for example) certainly have a right to be heard, and those who want to be activists, rather than scientists, practitioners, and educators, have that right as well. However, these activities do not need to take the entire Council of representatives along for the rides of their choosing. For example, council members from Division 39 (psychoanalysis), and some others, have offered little more than critiques of the APA and its current officers (who were not named in the Hoffman report).

Day 2 of Council opened with Representative Timothy Murphy (R-PA) addressing Council and discussing legislation entitled " [Helping Families in Mental Health](#)

[Crisis Act of 2016](#) ", which passed through the House with a 422-2 vote. This law would provide significant resources to people suffering from mental health problems, as well as support to family members. The bill has yet to go through the Senate. Representative Murphy urges all of us to contact our Senators to voice support for this legislation (and he asks that this be done unconditionally, without tacking on gun legislation, for example).

Interestingly, the Governor of Colorado and a US Representative spoke more about mental health and doing things to promote it than did any psychologist attending Council.

Following is a summary of some issues discussed and motions that were voted on in Denver:

The search for the next CEO for APA is underway. Cynthia Belar continues as interim CEO.

Those who are following know that APA is undergoing major changes in how it educates and adjudicates ethical issues. A final report by the ethics commission tasked with this is due in February 2017.

A motion on the floor to remove GRE cutoff scores from admission to psychology doctoral programs is under continued discussion. The rationale for the motion is that cutoff scores disadvantage minority applicants to a disproportionate degree.

The clinical practice guidelines for PTSD will be up for Council vote in February 2017. Guidelines for depression and obesity will follow.

Council voted in favor of creating a new membership category "Friends of Psychology", which carries the benefit of discounted journal subscriptions. Ultimately APA membership will vote on whether this category is created. Council just voted on the motion language and the idea in principle.

Nathalie Gilfoyle, former lead counsel to the APA, has retired and has been replaced by Deanne Ottaviano.

Finally, I include here some information from the Coalition for Academic, Scientific and Applied Research Psychology (CASAP) caucus meeting.

Dr Howard Kurtzman, acting director of the APA Science Directorate, introduced [Dr Amber Storey](#), the new Associate Executive Director of Scientific Affairs.

Dr Joshua Gordon of Columbia University has been hired as new director of NIMH.

The APA invited 9 scientists to present their research to congress (3 were psychologists). This was done to address the ongoing critiques that members of congress have directed at scientific research (often based on poorly written popular press articles, rather than reading peer-reviewed journal articles). Jeff Flake of (R-AZ), a major critic of funding basic science, attended. Dr Kurtzman reported that the event seemed to be a success.

Funding for research on nonhuman primates is continuing to decline. APA officials met with NIH director Francis Collins, who said there will NOT be a ban on monkey research. Dr Kurtzman pointed out the advantage of having him on record for saying this and hopes that there will be follow through. APA is also concerned about the ban on funding chimpanzee research and the effects this has had on chimpanzees being relocated into sanctuaries (some chimpanzee deaths have occurred shortly after relocation).

Cancer research. The Science directorate is trying to ensure that psychology is well represented in cancer research and the Cancer Moonshot that the Obama administration has announced. Three psychologists attended a summit with members of US Vice-President Joe Biden's staff about the Cancer Moonshot. Numerous areas of research as they relate to cancer treatment outcomes were discussed. Data sharing is also a topic of discussion within cancer research.

APA has held training institutes on emerging research and methodologies (78 participants). Single

case intervention research is a new one added to existing programs. Also, 38 undergraduate students (with solid minority representation) were awarded research opportunity grants.

APA president Susan McDaniel created a prize for interdisciplinary research and there were 18 applications submitted. The Board of Scientific Affairs is currently reviewing them for notification in the Fall of 2016.

Psychology was represented at this USA science expo. An exhibit featuring cognitive development research and sample tasks was on display for adults and children to participate in. The exhibit imparts important information about psychological science and psychology can use representation at events such as this.

Please feel free to get in touch with me if you have questions about Council (or CASAP) or have any issues or concerns you think our division should raise. Also, for additional detail on items in this report, and for anything I may have omitted, you can also consult the [August issue of American Psychologist](#).

Best regards,

Mark Krause, PhD

Professor, Department of Psychology
Southern Oregon University
krausema@sou.edu

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