Evolutionary Psychiatry Special Interest Group (EPSIG)

Newsletter April 2021

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1. Notes from the Editor

I am writing this, looking a tulips and feeling more positive about the future – I hope that the same is true for you. May human ingenuity and cooperation help us win the evolutionary arms race against coronaviruses and other pathogens.

As promised, we continue with our one disorder per newsletter overview – this time it is about how an evolutionary view my enrich our understanding of substance abuse disorder.

We also feature a thought-provoking interview with Dr Mike Abrams introducing his book about clinical evolutionary psychology.

2. Update on meetings

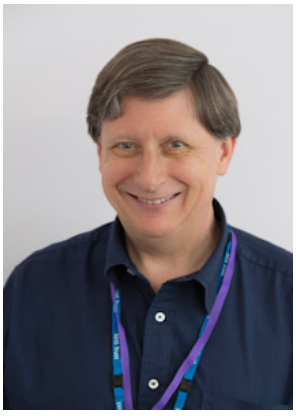
a) For those of you who were unable to attend the Attachment Webinar live, please see https://www.youtube.com/playlist?list=PL_gsGoSXTBodh6LHZZDkUfHp-V6ObeS5F for wonderful talks by Marinus van Ijzendoorn, Jeremy Holmes and Martin Brune. We are very grateful to Adam Hunt for his help in the running of the webinar and the posting of videos on YouTube.

b) The next EPSIG meeting, which includes the annual general meeting from 13h00 to 14h00 and a talk by Dr Gillian Pepper on the topic of *Perceived uncontrollable mortality risk and health behaviour: exacerbating socioeconomic inequalities* from 14h00 to 15h00 is on 11th June (by Zoom). Please book at: https://www.rcpsych.ac.uk/events/conferences/detail/2021/06/11/default-calendar/epsig-agm-and-lecture

c) The 14th-16th July 2021 is the annual conference of the International Society for Evolution, Medicine and Public Health, hosted online. ISEMPH is the largest society dedicated to evolutionary medicine, and there will be several talks on evolutionary psychiatry. Early bird tickets are available now at https://isemph.org/ISEMPH-2021

3. An evolutionary perspective on substance abuse (Paul St John Smith and Riadh Abed)

An evolutionary perspective on drug use and addiction asks two kinds of questions that complement the proximate models of mainstream medicine. These are:



1. Why are humans motivated to repetitively seek out and consume non-nutritional substances?

2. Why do plants (which are the source of the majority of such chemicals) manufacture substances that can alter the functioning of the human nervous system?

We propose these questions can have a real bearing on our understanding of the phenomena of abuse and addiction that complements models of proximate causation. The evolutionary perspective recognises that addiction can only arise through the interaction of substances with evolutionarily ancient systems designed to promote the pursuit of rewards associated with

increased fitness in the ancestral environment. Thus, neglecting the phylogenetic history and function of such systems necessarily results in an incomplete understanding of this phenomenon (Abed and St John-Smith, 2021). Evolution can also help us understand human uniqueness and especially the role of cumulative culture and gene-culture co-evolution in shaping the human body and mind. Hence, the evolutionary perspective enables a deeper understanding of human vulnerability to substance abuse and addiction. This article concludes by considering some of the clinical, medical and public policy implications of the evolutionary perspective presented.

Examining substance abuse from an evolutionary perspective offers explanatory advantages in illuminating a wide range of biological, psychological, and social facts and mechanisms in substance misuse (St John-Smith et al., 2013). Evolutionary models are unique in that they emphasize the effects that drugs had on fitness over human evolution. For substance abuse, a seemingly maladaptive trait, to persist, there must be either a 'trade-off' where the harm is counterbalanced by a fitness benefit, or substance-taking is a by-product of other more adaptive processes. Such models include the following models: psychotropic self-medication (pharmacological manipulation of emotions); pharmacophagy and infection control; mismatch theory; increasing reproductive fitness; evolutionary constraints; trade-offs; costly signalling and handicap theories; placebo, ritual, and healing effects; and finally, drug use in spirituality or religion (e.g. the role of psychedelic drug use by 'neo-shamans' and 'psychonauts') (see Box 1). Some of these models are conceptually similar or overlapping, are not mutually exclusive, and may interact in unpredictable ways.

Box 1 Evolutionary Theories for Substance Use and Addiction

Mismatch-based Models

- Generic Mismatch
- Hijack Model
- Novel Psychoactive Substances

Trade-off-based Models

- Pharmacophagy
- Neurotoxin-regulation

Models Based on Selection for Risk-taking Behaviour and Signalling

- Sexual Selection
- Costly Signalling
- Life History-based Models

Others

- Foetal Protection Hypothesis
- Shamanic Model of Psychedelic Drug Use

Emotional pathways and substance use

Primary emotional systems evolved to produce pleasurable affects in response to propitious circumstances or stimuli indicating adaptive success, and aversive affects in response to environmental or other threats, indicating reduced adaptive success. Drugs (of abuse) may be used to diminish aversive affects (e.g. opiates) or to increase positive affect (e.g. stimulants). These drugs override the adaptive functions of the primary emotional systems so individuals experience an increase in positive affect, or decrease in negative affect, independently of any change in their circumstances, thus decoupling the emotional system from environmental events, some continuing to consume the drug despite mounting harm because the reactions bypass the evolved protective mechanisms used to signal real success or danger (Nesse, 1997).

Human–plant co-evolutionary history and the paradox of drug reward

Plants evolved the capacity to synthesize chemicals (nicotine, morphine, cocaine etc.) that act as neurotoxins to deter consumption by insects and herbivores. Plant neurotoxins evolved over 400 million years and are therefore not evolutionarily novel. Consequently, human physiology can 'identify' plant toxins and activate defences that involve genes, tissue barriers, neural circuits, organ systems, and behaviours to protect against them. Drug toxicity and aversive responses (e.g. headache, sweating, nausea, and vomiting) evolved to deter, not encourage consumption by herbivores or parasites, still occur in humans, so are inconsistent with a simplistic theory of drug reward. This is a paradox. Consequently, other mechanisms, such as trade-offs, must be invoked as explanations (Sullivan et al 2002 and 2008).

The neurotoxin regulation hypothesis proposes that the parallel consumption of both the nutrients and neurotoxins in plants selected for a system capable of maximizing the benefits of plant energy extraction while mitigating the cost of plant toxicity. The pharmacophagy hypothesis proposes that the consumption of chemicals with medicinal properties is contingent on human–plant co-evolution. Self-medication advantages arose when humans learned to overcome cues of plant toxicity (e.g. bitter taste) and consumed potentially toxic substances with little energetic content because ingesting the toxins in small amounts was advantageous. Thus, the consumption of plant alkaloids could have contributed to reproductive fitness, and a taste for these substances could have been selected for. It is recognized that many such toxins are known to have anti-helminthic or antimicrobial and antiparasitic effects (Hagen et al, 2013).

Alcohol

Consuming ripe fruits containing small amounts of ethanol is selectively advantageous, as volatile alcohols potentially aid in olfactory localization of ripe fruit. Herbivores developed the capacity to metabolize alcohol to be able to utilize energy-rich fruits despite the presence of alcohol. In the ancestral environment, alcohol would have been encountered in fermenting fruit in low concentrations and small quantities for brief periods in the year. Subsequent to the agricultural revolution, large surpluses of fruits and grains became available for fermentation so alcoholic drinks were brewed up to 12–14% and stored/traded for year-round consumption. Much more recently, the development of distilling technology permitted the

production of far higher concentrations of alcohol. With the rise of larger settlements and cities, having access to alcoholic beverages may have protected against waterborne pathogens. However, enzyme systems that evolved to process small amounts of alcohol on an occasional basis can now be presented with inexhaustible supplies of highly concentrated alcohol, giving rise to a state of mismatch (St John-Smith et al., 2013).

Cultural, psychological, anthropological models and sexual selection hypotheses

Some evolutionary psychological theories concerning drug use suggest individuals consume drugs to increase reproductive opportunities. Drug use can increase reproductive fitness because consumption may:

(1) advertise biological quality, sexual maturity, or availability;

(2) decrease inhibitions in mating contexts; and/or

(3) enhance associative learning behaviours that in turn increase mating opportunities.

Variation in drug use susceptibility is in part due to genetic factors; therefore, successful drug consumption may be a costly and honest signal of biological quality: a process of costly signalling and sexual selection. Such risk-taking behaviour represents a fast life history strategy and involves future discounting. Life history theory can explain the current male preponderance in drug use, as female drug users incur much higher fitness costs through reduced parenting capacity, potential teratogenic effects, and potential circumvention of mate choice (Smith, 1999; Hagen, 2013).

Mismatch

The hijack hypothesis implies that a range of drugs of abuse effectively commandeer the neural reward circuitry in the mesolimbic reward pathway as a result of mismatch as the contemporary abundance of potent psychoactive substances is a recent and novel phenomenon that was not present and therefore could not have occurred in the ancestral environment. Also, any ancient 'evolved' advantages of any psychoactive substances have now potentially become a liability and risk in modern environments as cultural change is accelerating and outstrips biological adaptation. The evolutionary perspective can help researchers reach a functional understanding of substance abuse and develop treatments for the various complex underlying causes of substance misuse (Nesse, 1994 & 1997). Psychoactive substances, often hallucinogens which tend not to be addictive, have been used in various religious and cultural ceremonies (signalling) for millennia. Some advantages may be had from related group cohesion as well as their action on micro-organisms and other trade-offs discussed above (Orsolini, 2017).

By looking at drug misuse from an evolutionary perspective, we aspire to understand its underlying significance and evaluate its three-fold nature: biology, psychology, and social influences. In this article we have considered some aspects evolution and ancient psychotropic plants as well as human characteristics that lead to abuse. Thereby, we hope to move towards more effective treatment and early prevention, perhaps through public health measures that take greater account of known human vulnerabilities. Further research on the neuro-biological mechanisms of addiction in other species from an evolutionary perspective

and investigating salience and reward systems remain valuable. An evolutionarily-informed view on novel psychotropic substances suggest that mismatch between novel pharmacological hyper-incentives and ancient brain mechanisms is likely to worsen with the discovery of new drugs and new routes of administration.

Treatments

In psychiatric settings a range of interventions are compatible with the evolutionary perspective. Medicines that substitute for drugs of abuse or which attempt to disrupt the rewarding effects of substances, highlight our growing understanding of the neurochemical and neurophysiological underpinnings of addiction. Psychological and social interventions attempt to weaken cued associations, strengthen response inhibition, and consciously increase the salience of negative consequences of use. Broader lifestyle changes also facilitate recovery. The literature on natural recovery, for instance, highlights the importance of life experiences in treatments. A more positive approach to treatment that promotes the pursuit of 'natural" rewards may assist relapse prevention through reducing the relative reward salience of drugs and increasing the perceived costs of use .Life History Theory, explains why adolescence is a period of heightened vulnerability for the development of substance use problems, may promote initiatives that enable families and communities to act as 'surrogate frontal lobes' that can temper risk-taking proclivities (Durrant et al, 2009). Furthermore, improving the prospects of disadvantaged adolescents may reduce their propensity towards risk taking. This strategy straddles individual treatment interventions and also has wider societal and policy implications.

We suggest that it is crucial to investigate the evolutionary basis of substance misuse before we make the mistake of only investigating the necessary but insufficient proximate mechanistic causes and immediate environmental stimuli that may be associated with individual cases. Strategies for reducing the harm caused by addiction to drugs and other behavioural compulsions can be made more effective through a combination of targeting the mesocorticolimbic reward pathway with pharmacological agents, enhancing self-regulatory capacities, and through restructuring of the social environment to regulate availability and promote increased levels of social control (Durrant et al, 2009). We propose therefore, that an evolutionary understanding is required if we are to achieve a comprehensive plan to tackle the worldwide problem of drug-misuse and addiction.

Key Messages

- The evolutionary perspective explores why humans are vulnerable to misuse and become addicted to a range of non-nutritional substances.
- The evolutionary approach highlights the paradox as to why humans should procure and become addicted to plant toxins (poisons) that are designed by selection to deter consumption by other organisms.

- Evolutionary models of addiction such as pharmacophagy, mismatch and costly signalling are theories of ultimate causation that can complement rather than replace theories of proximate causation.
- Considering evolutionary factors can help inform future public health approaches to the problem of drug abuse and addiction.

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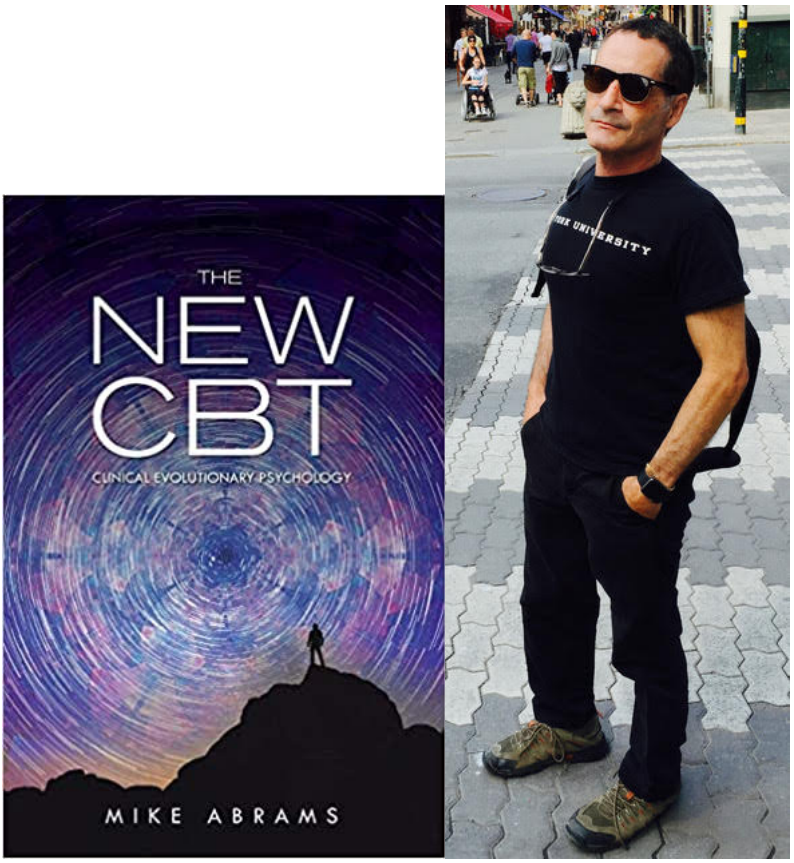
4. An interview with Dr Mike Abrams (conducted by Riadh Abed)



Dr Mike Abrams is board certified in behavioral and cognitive psychology by the American Board of Professional Psychology, a fellow and a diplomate in Rational Emotive/ Cognitive Behavioral Therapy from the Albert Ellis Institute, a part-time full professor in the graduate psychology program in New York University and a full-time practicing clinician,

The full title of his current book is "The New CBT: Clinical Evolutionary Psychology" from Cognella Press https://titles.cognella.com/the-new-cbt-9781516521623
Also available with free delivery from: *https://www.booksetc.co.uk/books/view/-9781516521623*

What triggered off your interest in evolutionary theory in relation to psychology?

I spent several years collaborating with Albert Ellis who took a strong, albeit tacit, evolutionary view of most mental pathologies. His approach which ultimately became today's cognitive behavior therapy (a term coined in 1969) was predicated on a range of innate and self-defeating cognitive tendencies. These tendencies include, but are surely not limited to, demandingness, arbitrary self-references, and unfounded fears. He concluded that these and other irrational modes of thinking underlie virtually all psychological problems that are amenable to talk therapy. In addition, the fact that so many people with diverse backgrounds expressed similar irrational beliefs led him to conclude that they were evolved aspects of the human psyche. Ellis concluded that many of our distorted cognitions would

have been adaptive in earlier epochs. Interestingly, this insight is very similar to that of John Bowlby who attributed pathological attachment styles to mismatched evolutionary traits and Sigmund Freud who attributed his structural model of mind to a recapitulation of evolutionary stages. He rejected the psychoanalytic approach of early evolutionary clinicians and created a more optimistic approach in which people can overcome distorted thinking with guided effort. I became even more interested in applying his insights when co-authoring a textbook on personality with Ellis where we added a great deal of content on both evolutionary psychology and behavioral genetics. When researching the literature on behavioral genetics and evolutionary psychology/psychiatry it became increasingly evident that Ellis's early insights were not only correct, but that expanding upon them would yield the most meaningful approach to the understanding of human psychology.

Why, would you say, is evolution important to the understanding of mental disorder?
It is more than important, it is essential. Iconic biologist Theodosius Dobzhansky proclaimed that "nothing in biology makes sense except in the light of evolution." While biology is predicated on other sciences like chemistry and physics, it still requires a comprehensive system that would permit it to explain the diverse phenomena that biological research encounters. Natural selection provides biologists with a foundation for predictions, a guide in their search for new theories, and a system within which to bring together the various hard sciences that are used in exploring the processes of life. Without the canons that natural selection provides, the life sciences would be little more than a collection of descriptive observations. In fact, life sciences are so fundamentally predicated on evolution that it is often taken for granted. For example, most discussions about changing virulence for the SARS-CoV-2 virus are based on natural selection.

Evolution is unquestionably essential for understanding most biologically based disorders, it is equally important for disorders of the mind. This "mind" is a metaphor for the observable processes of the brain and organic systems that support it. Since all mental are epiphonema of biological processes – the functions of the nervous system and its interplay with the organism as a whole – psychology, like biology, cannot be fully appreciated except in the light of evolution. For psychology and psychiatry to explain phenomena ranging from abstract cognition to refractory delusions it is necessary to make hypotheses and make predictions. If these hypotheses and predictions are to be meaningful, they must overlie a comprehensive model. Such a premise is found in the evolution by means of selection – both natural and artificial. I add artificially as we as a species have been capable of shaping our environment for millennia thereby directing our own evolution (sometimes referred to as gene-culture co-evolution or self-domestication). But whatever the impetus of our evolution, understanding it provides students of the mind the answer to the questions about why things are the way they are, not merely descriptions of how they are.

Why, would you say, have clinicians (psychologists, psychiatrists and physicians generally) been slow to embrace evolutionary theory?
I have found it remarkable that many life scientists who routinely use evolutionary models to explain phenomena like bacterial resistance to antibiotics, spinal disease, heritable illnesses,

and functionally redundant structures in the human brain will often express discomfort when asked about evolution's role in human behavioral inclinations. If this is the case for scientists whose work is often predicated on evolutionary models, it is no surprise that mental health clinicians will be even more refractory to the use of evolution. Physicians often do not see its relevance and psychologists frequently eschew it fearing that attributing individual differences to evolution could lead to abuses. Many Western mental health clinicians blindly embrace the standard social science perspective that humans are the only vertebrates born with a mental blank slate. Every animal breeder takes for granted that virtually any behavioral characteristic can be selected for, or eliminated by artificial selection. This is not as evident to many mental health professionals who will exclusively look for life histories, early environment, traumas and other biographical events to explain all interpersonal differences. In fact, many almost equate any mental essentialism with bigotry. This bias, along with a failure to fully apprehend the scientific role of evolution, are the major reasons why many in the mental health field have evaded the application of evolutionary principles.

Is it important in your opinion to include evolutionary science into the undergraduate and postgraduate curricula and if so what, in your view, would be the best strategy to achieve this end?

As we discuss this, people are struggling to apprehend how mutations in the SARS-COV2 Virus can make it more virulent or resistant to the antibodies produced by the current vaccines. Evolution is the best model for understanding the genetic differences that underlie illness like Alzheimer's or other dementias. People would have far less difficulty understanding these pathologies if they understood evolutionary science. Understanding evolution is extraordinarily scientifically based, its inclusion into academic curricula will help students better appreciate scientific inquiry and the high standards of scientific research. Finally, since all other explanations for the origin of life and variation of species are predicated on speculation, the study of evolution is essential to any field that advocates the scientific method.

In your view, why are there still no evolutionary psychiatry university departments and no academic journals dedicated to the subject whereas there are many dedicated to evolutionary psychology?

Western culture is still emerging from the trauma of eugenics which added legitimacy to racism, sexism, and ultimately mass-murder. By the early 1930s, 28 U.S. states had passed laws permitting mandatory sterilization of those people deemed to be mentally or physically undesirable; these laws were expanded to permit the forced sterilization of more than 60,000 people. This national disgrace may inadvertently have laid the groundwork for the Nazi mass exterminations given that a U.S. publication advocating for eugenics, the Eugenical News, printed many essays commending the Nazi racial policies. Adolph Hitler, in response, lent his support to America's eugenic movement's policies to ban "undesirable" immigrants. Our policies became so authoritarian and racist that Adolph Hitler in his Mein Kampf complemented the US eugenic policies:

> "There is at present one State where at least feeble attempts of a better conception are perceptible. This is of course not our German model republic, but the American Union where one endeavors to consult reason at least partially. The American Union, by principally refusing immigration to elements with poor health, and even simply excluding certain races from naturalization, acknowledges by slow beginnings an attitude which is peculiar to the national State conception."

When the US saw the horrendous results that perverse distortions of genetic principles led to in the third Reich, the American eugenic movement rapidly collapsed. However, the legacy it left tainted genetic explanations of human characteristics. This is instantiated by the general social science model that asserts that virtually all individual differences result from upbringing and culture. For generations people like sociobiologist E.O. Wilson were met with hostile protests accusing of them of racism for their attributing many human behaviors to genetics. This hostility has gradually been put to rest with the remarkable work by evolutionary psychologists like David Buss and evolutionary psychiatrists like Randolph Nesse who have set forth compelling evidence that evolutionary principles apply to both normative and pathological human behavior. Nevertheless, it might be a while before evolutionary psychology/psychiatry becomes central to the curriculum of many psychiatry or psychology programs.

How can evolutionary psychiatry (or the application of evolutionary principles to psychiatry) fend off the accusations of promulgating 'just so' stories?
It is interesting that you ask about the 'just so' stories designation for evolutionary psychiatry/psychology explanations. In my book, I discuss the debates between palaeontologist Stephen J. Gould and evolutionary biologist Richard Lewontin two strident critics of evolutionary psychology and several of the founders of modern evolutionary psychology. The 'just so' stories rebuke of evolutionary psychology was coined in the book "Not in our genes: Biology, ideology, and human nature, by Lewontin, Rose and Kamin." They argued for the standard social science model which minimizes the role of heritability and explains most individual differences through culture, parenting, and life experience. The two antithetical perspectives were deliberated out in a series of contentious articles published in the New York Review of Books for much of 1997. Lewontin summarized his "just so" critique by arguing that the evolutionary and sociobiological scientists arbitrarily construct superficial but plausible stories to explain social traits through natural selection. Lewontin dismissed this approach by asserting that all an evolutionary psychiatrist need do is pick any variable behavioral trait and one can cleverly devise an environmental pressure and come up with a "Darwinian version of Kipling's Just so stories".

The premise of those who dismissed evolutionary explanations for human cognitive and behavioural attributes was largely based on the a priori assumptions that humans are largely blank slates and differ from all other mammals in not being endowed with innate inclinations, that all evolutionary psychological and psychiatric explanations were based on a top-down technique of observing human social attributes and then arbitrarily fabricating a milieu in

which they would have been selected for it. In fact, the standard social science model has done a very poor job of explaining our mental repertoire. It does little to explain the extraordinarily high heritability of schizotypy, autistic spectrum disorders and personality variations. In addition, it fails to explain the similarity of monozygotic twins raised in unshared environments, the persistence of vulnerabilities like fearfulness, extreme fearlessness, aggression, psychopathy and pathological jealousy. If these attributes are all shaped socially why do they exist so consistently across cultures and epochs? Wouldn't a genetic and evolutionary model explain them better than John Watson who proposed that with sufficient time and resources he could behaviorally shape twelve children into a doctor, lawyer, artist, merchant chief and, yes, even into beggar man and thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestor?

In short, advocates like Leda Cosmides cogently demonstrated that the arguments against evolutionary psychology were predicated on anti-essentialist bias. Lewontin and his like-minded critics pointedly ignored numerous cross-cultural studies supporting the existence of mental modularity that produces many innate human propensities. Such studies demonstrated that decision making like that seen in the prisoner's dilemma, responses to mate infidelity and judgments in the selection of a mate, have all been experimentally shown to be explained by evolved psychological mechanisms. For example, Tooby and Cosmides proposed that humans have an evolved psychological mechanism to detect social deception. To test this, they conducted many studies exploring the role of innate mental modules.

For example, based on cross-cultural studies of social or reciprocal altruism, Cosmides and her co-workers theorized that a natural selection for altruism would have to be associated with selection for the ability to detect cheaters in implicit social contracts. She devised a series of experiments based on the Wason selection task, which tests a person's ability to perform propositional logic. In this selection task, participants are asked to solve a in which four cards labels as follows: **3 5 D L.** Each of the cards has a letter on one side and a number on the other. Participants were asked to determine which cards would have to be turned over to test the validity of the proposition that if a card has a D on one side then it must have 5 on the other side. Most people will first turn D over to check to see if there is a 5 on the other side, understanding that it will demonstrate the proposition is violated if there is a D on one side and there is no 5 on the other side. However, most participants also tend to turn over the 5, apparently making the incorrect assumption that if a D is not on the other side of the 5, then the proposition is false. Most miss the correct answer that the D and the 3 must be turned over, as there must be a letter other than D on the other side of the 3. When people are presented a problem that does not tap into the type of reasoning that was required during our evolution such as the Wason task very few intuit the answer – in this than less than 10%.

In contrast when people are presented a problem that taps into our innate tendencies to assess social behavior the solutions become far more apparent. This was demonstrated when people were presented 4 cards that had a drink on one side and an age on the other. They were presented four cards labelled **Gin Pepsi 25 16** and were asked to decide the truth of the

proposition: If a person drinks gin, they have to be over 21 years old. Concordant with the earlier Wason task the solution requires that the cards with Gin and 16 on them must be turned over to test the truth of the proposition. Thus, when a solution is founded on a real-world matter like the drinking problem presented above, about 75% of the subjects were able to solve it. Cosmides and other evolutionary psychologists suggest that the second task taps into innate mental modules that detect social deception or cheating, such problems appear far more intuitive that those of similar difficulty that require formal logic.

This is one example of the vast body of experimental research that evolutionary psychologists have conducted to test the principle of evolved modularity in the human brain. These studies have explored social judgments, sexuality, information processing, and even psychopathology and have consistently supported the existence of innate and probably evolved mental modules. In short, even a brief survey of these studies validates the scientific foundation of evolutionary psychology that allows for a rejection of the appellation of "just-so" stories.

Why have there been so few interventions in psychiatry based on evolutionary science?
There exists a great deal of laudable work on evolutionary psychiatry presented by writers like Michael McGuire, John Price, and Randolph Nesse. For nearly half a century they have advanced compelling evolutionary explanations for psychiatric disorders. However, the preponderance of their work deals with evolutionary explanations for disorders; they did not offer a great deal of interventions based their models. Evolutionary psychiatrists have offered enlightening ways to conceptualize many apparent pathologists. For example, they have proposed that a condition like psychopathy can be adaptive during social upheaval or that anorexia nervosa can offer a relative advantage to young women during settings absent of birth control and with high reproductive risk. Even disorders in the schizophrenic spectrum have been persuasively argued to be adaptive in ancient tribal cultures that had shamans in high status roles. In such a setting, a prodromal schizophrenic male could have his burgeoning illness conflated with mystical charisma. Given the short life span and early reproduction he would have had more than sufficient time to reproduce prior to the expression of more severe symptoms.

These and other persuasive new looks at psychiatric illness were not accompanied by evolutionary based interventions. This deficit in the literature on evolutionary psychiatry was paralleled in the work on evolutionary psychology, but for a different reason. Evolutionary psychologist has focused primarily on evolved psychological mechanisms underlying normative functions, there has been very little developed on the evolution of pathology. It was this oversight that I addressed in my book "The New CBT." Prior to its release there has only been one clinical protocol for applying evolutionary psychology to clinical problems. It was an article on jealousy by David Buss and me titled "Jealousy, infidelity, and the difficulty of diagnosing pathology: A CBT approach to coping with sexual betrayal and the green-eyed monster." Indeed, there a long history going back to George Romanes a contemporary of Darwin suggesting that human behavior be viewed through an evolutionary

lens, but the specifics have been vague. My current book both details the importance of clinical evolutionary psychology and provides a range of approaches that provide methods and novel viewpoints for clinicians.

There has been a lot of interest in your recent book 'The New CBT' where you propose a form of CBT based on evolutionary thinking. Is it possible for you to explain the core ideas you propose in your book and especially how evolutionary CBT differs from regular CBT?

The practice of psychotherapy is gradually moving away from its history of personality-based treatments, in which the treatments proposed by pioneers like Freud, Ellis, Beck, and Rogers are applied as sacrosanct and immutable. The work of these pioneers established starting points for later generations of researchers and clinicians who must adapt or reject their methods in deference to the rapid advancements in neuroscience, genetics, and evolutionary psychology. Psychological treatments must progress in the same way as does all other healthcare regimens. The mercury based antibiotic Arsphenamine, the first effective antibiotic, was an extraordinary advancement for the second decade of the 20th century. It remained important, not as a treatment, but as a catalyst for the discovery of very different and far more effective chemotherapeutic agents for both infections and neoplasms. The early psychotherapies remain important in much the same way. They are imperatives for the development of more scientifically based and more effective psychotherapies. The further away psychotherapy moves from an art, and the closer it gets to a science, the better all of us will be. Consequently, I propose a CBT called Informed Cognitive therapy that applies neuroscience, behavioral genetics, and evolutionary principles to clinical interventions. This includes helping each client understand that many of their problems are a result of traits that may very well have been advantageous in other settings.

A significant element of my Informed Cognitive Therapy, or ICT, is that it begins treatment with the assumption that every mental function – good or bad, is a product of a brain comprised of numerous interacting modules. Similarly, it encourages psychiatrists to erase their boundary with neurology. And that requires non medically trained clinicians to be conversant with brain functioning and develop a knowledge of the role somatic functioning plays in mental states. They are asked to start all treatment with a flexible hypothesis of how the client's problems relate to their brain functioning. This requires a knowledge of the neuroscience of emotions, perception, and cognition. This knowledge is then used to adjust the specific interventions applied in CBT to a client's unique adversities. For example, the person afflicted with acute social anxiety might assess their condition quite less pejoratively if they know about evolutionary mismatches. That is, they could be helped to understand that their fearfulness might have provided them a relative advantage in a setting or epoch in which interpersonal threats were greater and more lethal. This insight will not only help them view themselves in a better light but help them to commit more to the arduous process of changing innate propensities.

My ICT requires that both the clinician and their clients keep an open dialogue of the logic and scientific basis of the therapeutic process. That is, the clinician must always be able to explain what and why they are doing and to explain this to the client. In addition, to requiring an ongoing dialogue about the premises of ICT, itself, it also requires that clinicians and clients remain informed about the nature of psychological disorders, their prevalence, and competing theories and techniques. The most important of these processes include:

a) Clarifying the universality of psychopathology. Clients are helped to understand that all humans have psychological flaws and there is no shame in having flaws that are more painful.
b) Educating clients about the genetics and adaptive qualities of many disorders (if relevant in their case): The knowledge that many disorders are innate and not the fault of the client achieves two goals. First, it helps the client avoid the futile search for the defining moment or person responsible for their problems. Second, by explaining a strong inclination to possess certain traits that are resistant to change but not immune to hard work, the client can be enlisted to focus greater energy at overcoming their problems.
c) Explaining the concept of evolutionary mismatch disorders: No client can be guaranteed that their problems are advantages in disguise. But they can be assured that many mental mechanisms that now appear to be disorders were advantages in other settings. This knowledge will reduce shame and self-damnation while encouraging stronger efforts at change.
d) Identification and enhancement of the client's innate strengths: Just as all mental problems have innate components, so do all psychological strengths. Intelligence, creativity, resilience, social judgment, compassion, empathy, and all other facets of a person's identity are both innate and developed in the course of life. Very often psychotherapy becomes fixed on diminishing problems and overlooks highlighting and enhancing the client's strengths. ICT strongly encourages helping the client to appreciate their unappreciated or unnoticed assets. Doing so will enhance the process of therapy, as people in distress will tend to focus on their deficiencies. Helping them to see the best in themselves strongly motivates overcoming current problems.
e) Continual effort to fully understand the client's life and point of view. ICT applies an idiographic approach in the understanding of each client. The flexible hypothesis I discussed earlier is continually updated with new information imparted by the client and this is used to modify the interventions used. It is also used to provide the client with new insights into the origin of their adversities.

What other aspects of your evolutionary work would you like draw the attention of our members to?

I have been conducting work in the origin of sexual paraphilias and have conducted several studies that have indicated that the connection of early life abuse with sexual paraphilias – especially in males -- may point to evolutionary adaptations. I am currently working on the evolutionary basis of relationship infidelity.

What advice would you like to offer to your fellow evolutionists in both clinical psychology and psychiatry that could help them disseminate evolutionary thinking among their colleagues?

I strongly recommend that they remind themselves of Dobzhansky's aphorism and remind their colleagues that it readily applies to all other life sciences. Nothing in psychiatry or psychology truly makes sense except in the light of evolution.

Many thanks for reading the Newsletter and please don't hesitate to get in touch with any contributions or suggestions.