

Session ID:

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Abstract Title:

The Sexy Drugs and Choline Chronicles: Choline and Biological Sex Effects on Social Interaction during Cocaine Use

Presenting Author(s):

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Abstract:

Presently drug use and abuse presents a significant public and mental health challenge with 855,000 Americans dependent on cocaine. The enormity of this challenge is compounded by our lack of understanding about the neural mechanisms that support addiction and relapse. Fortunately, major advances are being made by conducting research with non-human animals, such as rats. Our lab has been studying this for several years particularly focused on stimulant drugs that trigger the neurotransmitter, dopamine. Dopamine plays a fundamental role in the reward pathway and repeated exposure to it profoundly and persistently alters brain structure and function. Thus, a key focus in this field is on factors that may prevent or attenuate these changes. Our lab studies the capacity for the essential nutrient, choline, to combat the negative effects of cocaine on neural function. Choline is found in foods such as eggs and broccoli and when there is a rich supply prenatally, there are increases in adult neural plasticity and protection from neural insults. This summer we focused on whether prenatal choline availability impacts a novel and understudied aspect of drug use in rats: how social interactions are altered by cocaine. We also investigated if these effects varied as a function of biological sex. Accordingly, the subjects were female and male offspring of rat mothers treated with a standard or supplemental choline diet during pregnancy. As adults, rats were given injections of cocaine or saline on alternate days and placed in a Plexiglas box with another, same-sex rat for 2 hours. We will present data collected from the first and last cocaine and saline days. These results will offer novel insights into the ways cocaine affects behavior shedding light on the protective effects of choline.

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Abstract Title:

Fingerprinting Alaskan dust to track changes in the westerly winds

Presenting Author(s):

Other Authors:

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Abstract:

Earth's surface winds play an important role in the distribution of dust, pollution aerosols, and moisture, with significant impacts on human societies. For instance, shifts in the Northern Hemisphere westerly winds during the past millennium, and related hydroclimate changes, are thought to have supported the expansion of the Mongol empire in the 13th century. Knowledge of how these winds responded to past climate changes is critical for predicting future behavior. In this project we use a novel approach based on the isotopic composition of mineral dust, which relies on the fact that different bedrock sources imprint unique geochemical fingerprints on eroded sediments. This in turn allows changes in the composition of dust trapped in alpine ice cores to be used to map how wind patterns have changed through time. Our research uses sediment, snow, and ash samples collected from Denali National Park and throughout south-central Alaska during the summers of 2016, 2018, and 2019. Using complete acid digestions and chromatographic column separations, we are working to characterize the isotopes of lead, strontium, and neodymium, as well as major and trace element concentrations. We expect that dust at high elevations in the Alaska Range will be sourced from Asian deserts, allowing changes in composition to be used to track past shifts in the westerly wind belt. The long-term goal of this research is to use the Denali Ice Core to develop a long-term reconstruction of how the Northern Hemisphere westerly winds have changed over recent centuries. As climate models are unclear on how the westerlies will shift with ongoing climate warming, our results will provide a valuable paleo-perspective on past wind behavior.

Session ID:

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Abstract Title:

A Speculative History of Katharine Barber James Prince [1834-1890]

Presenting Author(s):

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Abstract:

This paper focuses on the life and situation of Katharine Barber James Prince, a woman born in 1834 whose correspondence is chiefly housed in Colby's Special Collections. Katharine, known affectionately as Kitty, wrote numerous poems, more than 4 books, and several religious tracts—all either published under pseudonyms or never published at all. Many of these writings have since been lost, some attributed to other writers, and the only clues to Kitty's life and authorship now lie in her notebooks and her correspondence. Her cousins, William and Henry James, were some of the most famous writers of their time, and Kitty has periodically surfaced as a point of interest for scholars of William James, but no published biography of her exists. In fact, many of her letters have remained unread until this year.

Katharine James lived in and out of mental institutions for much of her adult life. It is unclear exactly when and for what exactly she was institutionalized. Kitty lived at the intersection of multiple vulnerable identities- she was a woman, a writer, a mental patient, and a devout Christian. The institutions that took hold of her- religious, medical, and commercial- were institutions that she could not participate in with any authority. These institutions were intimate parts of her life, her father was a minister, her husband her psychiatrist. Kitty emerges from her correspondence as a charismatic, ephemeral figure; her correspondents lived all across the United States but found a common center in 'Mrs. Prince' despite her ever-changing situation and mental state.

Her navigation through the powers over her did not leave her unmarked, there is a distinct and tragic shift in her writing from the hopeful days of 1850 to the lonely ones of 1886. From when she was very young, Kitty was told that she had too much excitement, too lofty goals, and too much self-involvement to ever be a 'good' Christian. The expectations of womanly modesty, small good works, and selfless piety weighed heavily on Kitty until the day she died.

This paper will discuss some of the challenges of gathering histories such as Kitty's. She was not famous enough for her letters to have been widely kept and studied, but her family was prominent enough that portions of her correspondence have certainly been edited, separated, or destroyed to preserve their good name. The history I have compiled is drawn from a number of sources: the James Family Collection in Colby College Special Collections, the William James Collection in Amherst College Special Collections, and published letters of William James. Inclusions from these texts will be my focus—time has left a trail of breadcrumbs; let's follow them to her.