

Tuesday, 7 January / Martes 7 de enero

11:00-12:30: Salón Topacio

Human Geography II/ Geografía Humana II

Chair: Carl L. Johannessen

Old World Plants and Animals across the Panamanian Isthmus to Peru

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With the Spanish Conquest of Peru in 1532, the Panamanian Isthmus became the main transfer point for plants and animals of Old World origin being sent to Western South America. Moving biological material from Cádiz to Nombre de Dios and from there to Panamá Vieja and on to Callao/Lima required completing two sea voyages and two land trails, a four month-long journey at the least. I raise four cultural-historical geographical interrogatives of the why, where, how and when of these transfers. Absence of documentary details about the movement of the Old World inventory to the New World makes this largely a speculative inquiry. Ten organisms, nine of which were introduced on purpose, are examined: wheat, rice, broad bean, grapevine, banana, sheep, chicken, cat, rat, and honey bee. Each had different requirements, sea and overland hazards and trajectories of movement.

Keywords: biota, introduction, Panamá, Peru, speculative inquiry

Historical land use change in central Mexico: Another potential contributor to the Little Ice Age

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A major gap in our current knowledge concerns the possible linkages between historical land use and land cover (LULC) changes and late-Holocene carbon (C) pool fluxes and climate change. Soil is the largest terrestrial C pool, and converting cropland to pastureland significantly increases soil C sequestration rates. This paper reports on work being conducted in central Mexico that uses early-colonial (1521-1620CE) land grants awarded in New Spain to quantify the amount of land converted into pastureland for introduced sheep. The land grants and associated archival documents contain location-specific information about soils, vegetation, hydrology, and other LULC variables that make it possible to map them in a Geographic Information System. Doing so allows calculation of changes in C pools over time and space for an entire century, and can thereby illuminate possible linkages between the landscape effects of colonization and late-Holocene climatic anomalies such as the Little Ice Age (1550-1750 CE).

Keywords: Mexico, land use change, carbon, Little Ice Age, colonial period

The 260-Day Solar Year Agricultural/Religious Calendar Cycles

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At 14°42' North and South the sun has an exact vertical zenith twice a year that is used in various religious calendars. Every August (North Latitude) the vertical zenith occurs and again in May, 260 days later. The same zenith occurs at 14°42'S, offset by six months. 14°42' North crosses over Izapa and Copan where temples were built to mark the solar event using mountain peaks and temple building as markers. The South latitude runs across the northern edge of the famed Nazca Plains intersecting a series of radiating lines. It also point lies between two peaks marking the rising and setting of the sun on the zenith dates. 14°42'S also runs over a designed rock pattern on a hill near Santa Ana. We propose that there are likely other, as yet undiscovered sites around the world on these same latitudes where the astronomer priests would have noted and marked this 260 day event. I am challenging other geographers to look at the areas covered by these two latitudes and help see if there are other cultures that also marked this event.

Keywords: Diffusion, Calendar, Cultural Geography, Izapa, Nazca

Recent investigation of collapse sinkholes (rejolladas) as loci of cacao production in the northern Maya lowlands

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Rejolladas are collapse sinkholes with bases above the local water table that are densely distributed over portions of the Northern Lowlands of the Yucatan Peninsula. Typically they sustain moist microclimates in comparison to the surrounding terrain, as well as thicker soils allowing them to be used for more intensive agriculture. The paper presents a model of use and importance of the *rejolladas* based on archaeology, geomorphology, soils, botanical evidence, water table position, and geographic location in the Northern Lowlands. Specifically examples will be discussed from the sites of Uci, Xuenkal, and near the modern city of Valladolid. Together these data strongly suggest that the sinkholes were utilized intensively by the ancient Maya for the production of cacao (*Theobroma cacao*) in an environment otherwise unsuitable for cultivation. In particular, deeper, steeper *rejolladas* were more likely to have been used for cacao production.

Keywords: Yucatan, sinkholes, ancient Maya

Caracterización agroecológica de la vainilla (vanilla spp.) en la huasteca potosina

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Vanilla spp., es una orquídea con potencial de crecimiento en la Huasteca Potosina, por ello se requiere conocer las variables que permitirían aumentar su producción. Se aplicaron 31 cuestionarios y se visitaron 26 vainillales, obteniendo datos sobre el manejo del sistema de producción. Se calcularon las variables espaciales de la parcela y se elaboraron mapas de temperatura y precipitación. Los primeros resultados indican que la superficie promedio por parcela es de 2,514 m². El 55% de los entrevistados mantienen su sistema de producción en acahual, 13% en cítricos y 32% bajo malla sombra. Las parcelas se distribuyen en altitudes de los 61 a 678 metros. La temperatura y precipitación oscilan entre los 22 y 25°C y 1,540 a 2,740 mm anuales. Al comparar las variables: tamaño del fruto y porcentaje de plantas con fruto, bajo los diferentes sistemas de producción, no se encontró diferencia estadística significativa.

Palabras clave: *Vanilla spp.*, caracterización, agroecología, sistemas de información geográfica

Comparative Breadfruit use among Miskitu, Garifuna, Creole, and Rama Populations of Nicaragua's Costa Atlántica

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European colonization of the New World introduced hundreds of plant species as part of a process Alfred Crosby called the “Columbian Exchange”. Despite the late 18th century saga of Captain Bligh of the good ship *Bounty* and his efforts to transport breadfruit from the South Pacific to feed the slave population of the West Indies, how this non-native tree spread through the Caribbean to eastern Central America and became incorporated into the diet of millions, is still unknown. Today, the tree is common among populations of African descent in the region. This study examines cross-cultural breadfruit use, medicinal and as a foodstuff, among the Miskitu, Garifuna, Creole, and Rama populations of Nicaragua's Costa Atlántica. Methods consist of on-site observations and interviews during May 2013. More similarities than differences in breadfruit use exist between groups but each group favors a specific breadfruit dish.

Keywords: breadfruit, biogeography, cultural geography, Nicaragua, Central America