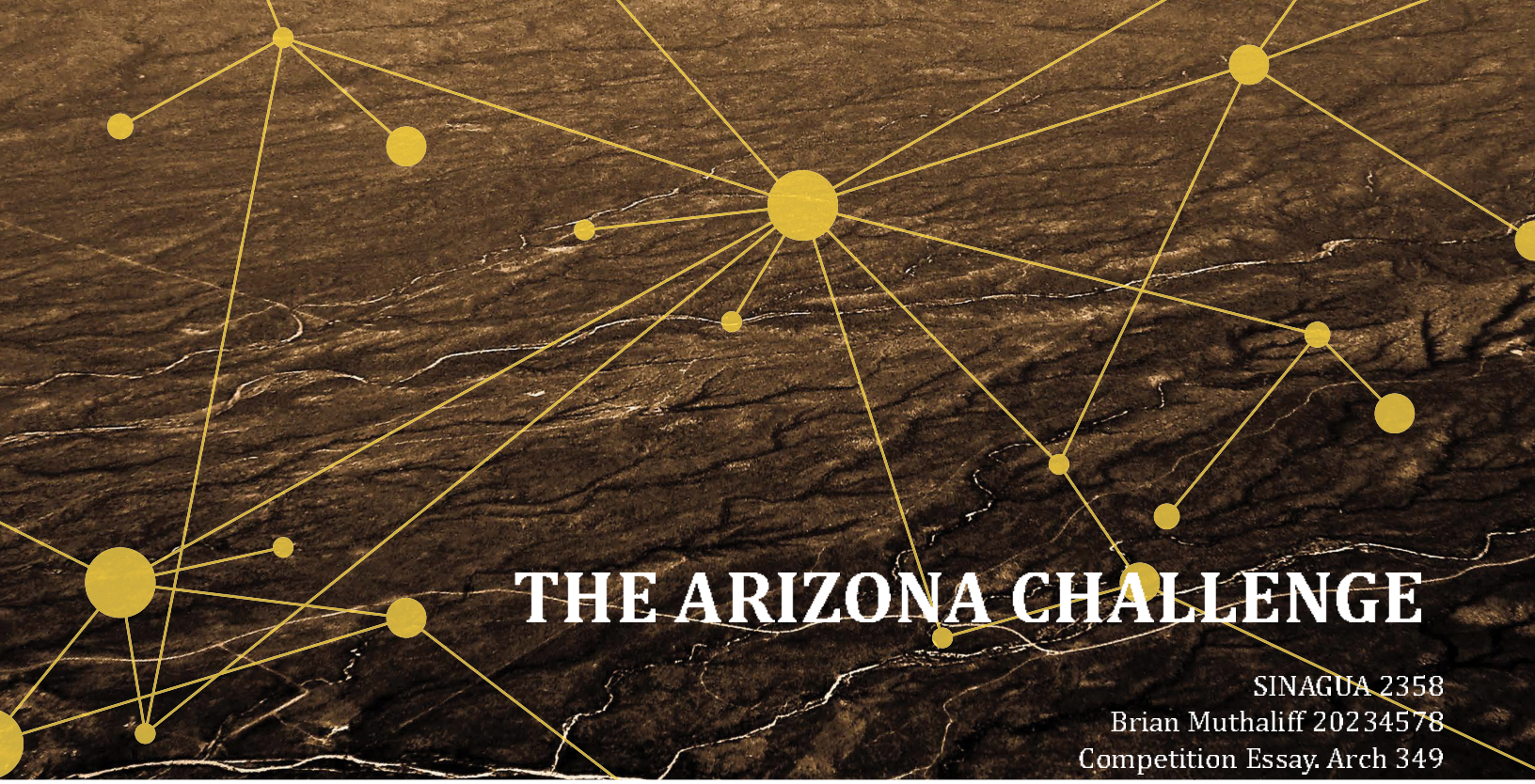

THE ARIZONA CHALLENGE

SINAGUA 2358
Brian Muthaliff 20234578
Competition Essay. Arch 349

The competition brief: "to envision self-sustaining communities that lead first to prototyping and eventually, a whole new reality. The goal is nothing less than to shape our future cities and urban environments, well beyond the limitations of what currently exists."

"If this is a desert, what are all these people doing here?"

Reyner Banham, Scenes in America Deserta, p.158 (1982)1

Sited in the Arizona Desert, our immediate response was to research into and find precedent of self-sustaining desert inhabitants. It is quite easy to imagine desert landscapes as desolate places. The blazing heat, viscous sandstorms and lack of water do not spark the imagination for inhabitation. Yet it is baffling that many of the first cities in civilization have rooted themselves in the desert. The "Cradle of Civilization" in Mesopotamia is mostly a desert area, albeit with abundant water in places, and cities such as Damascus are among the oldest cities in the world. The rich civilization of Pharaonic Egypt, huddled on a knife's edge between river and desert, and Egypt's greatest monuments are desert monuments. Cairo, at least one of the largest cities in the world and many of its holiest cities are desert cities. [1]The image of a thriving desert city becomes much clear with these historic precedents, altering the original question from "How can a people live in the desert?" to "How can the city protect its inhabitants within this climate?"

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This question is easily dealt with by simply looking at the architectural form of these cities, both planometrically as well as sectionally. In many of the Kasbah Cities of Morocco, the clustering of forms is found to be the most apparent characteristic. This phenomenon is no different from the clustering of penguins in the Antarctic during harsh storms, or the formations of forests at the edge of deserts. Clustering is a defense mechanism used to shield and protect the heart of the collective. In the case of the Kasbah's, it not only shields the centers from the harsh weather conditions of the desert, but in the random organization of the cluster, creates narrow corridors of ventilation. The Kasbah as a precedent is quite complex in its form as it provides to the citizen on many more levels than is apparent. The height of structures in these cities is of vital importance as well. Since the sun beats down at steep angles for most of the day, it is important that the citizens stay in shade. The extremely narrow corridors between buildings are almost always in shade and collect cool breezes that flush the Kasbah of its heat.

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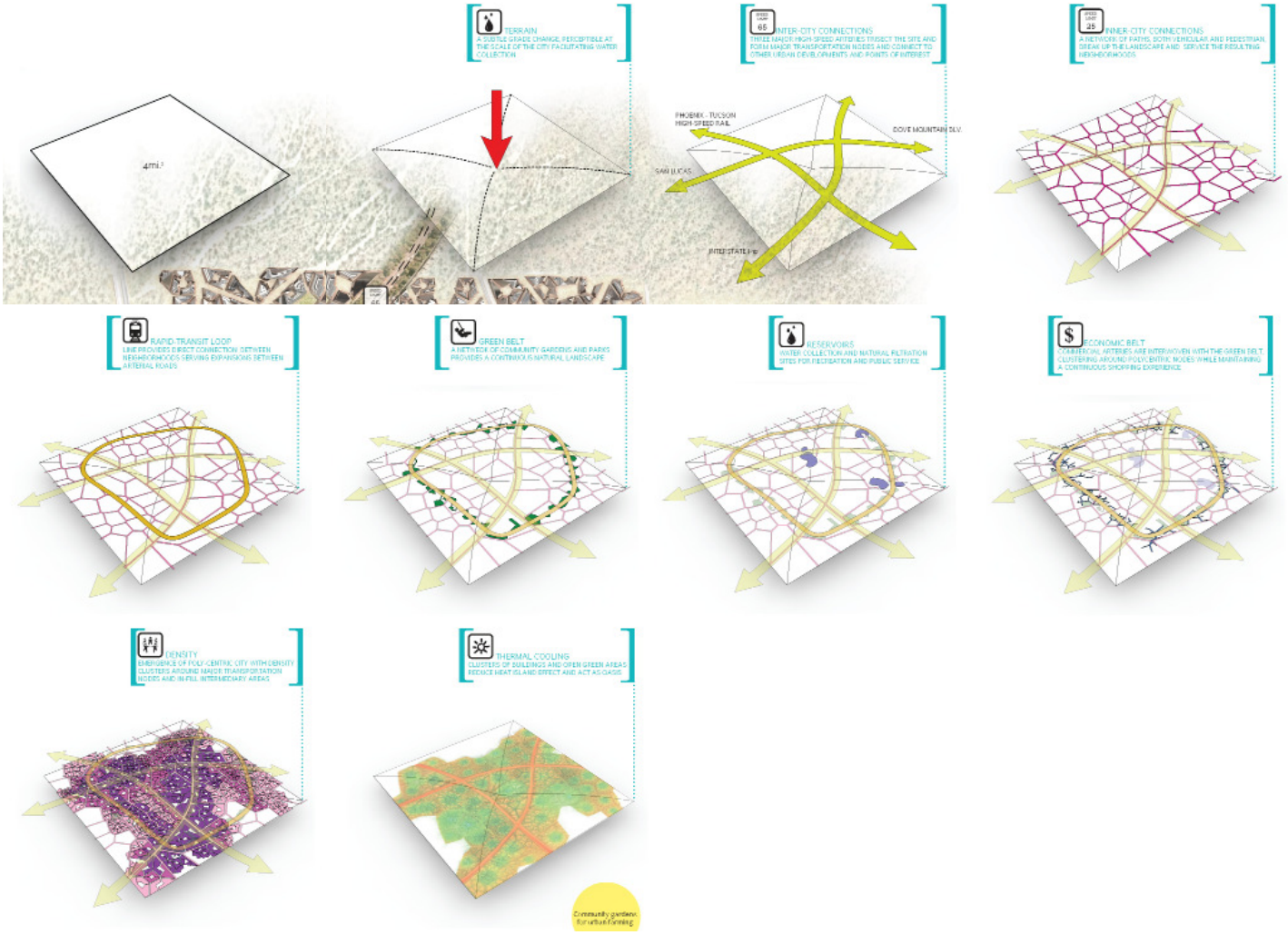
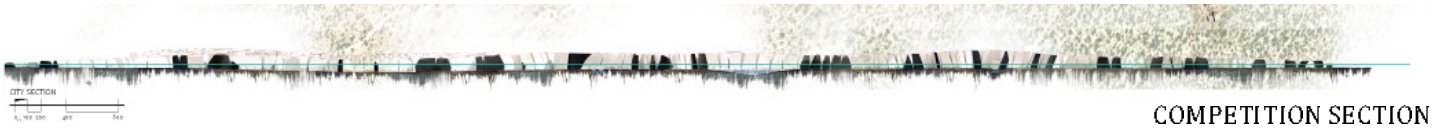
The Sonoran desert (The Site), specifically, has been home to civilizations for centuries, and while in this day and age, we have managed to use technology to mass produce our shelters insensitively around the world, there have been civilizations that have studied and learned the desert to harness its potential for habitation. In what we now call Biomimicry, these early civilizations practiced as a lifestyle. The Sinagua people latent to the Sonoran desert, a name meaning 'without water', have developed strategies of farming that have allowed them to survive in the harsh conditions regardless of the scarcity of food and water. They did this by practicing desert agriculture without irrigation. This was highly dependent upon both winter snow and rain and summer monsoonal weather patterns which move moist tropical air from the Gulf of Mexico into northern Mexico and the southwestern U.S. states of Arizona, Utah, New Mexico, and Colorado. This moist air, combined with the intense solar heating of the ground, can cause the development of substantial thunderstorms that can deluge some portions of the ground with great amounts of water over a short time. While the surface quickly becomes dry, and there is much runoff of the water into normally dry streams and riverbeds, a substantial portion is absorbed into the upper soil levels. To take advantage of this condition for agriculture the crops were started early in the season, where they utilized residual winter water from the Pacific Ocean storms originating in the Gulf of Alaska and other Winter Pacific storms from the tropics (the "Pineapple Express"). The early sprouts from planted seeds (mostly beans, squash, and maize) are protected by starting them in small dug holes, where they are both closer to the winter water remaining in the soil and protected from the early spring frosts. To further take advantage of the seasonal washes by winter snows and summer rains, the aboriginals employed a natural form of irrigation by planting downslope from a wash, allowing floodwaters to slide over their crops.[2]



Having studied into the history of the site and sites similar, we dove into the competition; a proposal for a sustainable city in the Sonoran Desert. As the population of Arizona continues increase in arid conditions, we chose to focus on how the city's design helps alleviate water concerns through building the city upon a sloped topography which would collect run-off water from throughout the city towards the core. This process allows not only a thermal mass to provide natural cooling for the city, but also a grey-water resource from which the city can draw upon for consumption through tributaries which run across the polycentric city. A system of clustered zones is developed around nodes, amounting to an aggregation of built form mimicking that of the Kasbah's to harness all its qualities. Issues of urban alienation can be countered, we believe, through the implementation of sustainable components. By providing the members of the community with sustainable tools of production and consumption, we immerse them in an environment which helps them to engage in responsible acts on a day-to-day basis like community gardens for urban farming. This encourages the members of the community to not only take responsibility for their actions, but also feel a sense of pride and ownership over the design of their city as well as the sense of solidarity and community in a social bond committed to making environmentally-responsible decisions. A socially-cohesive and actively green community is our optimistic vision as a viable design for a future city.



COMPETITION SECTION

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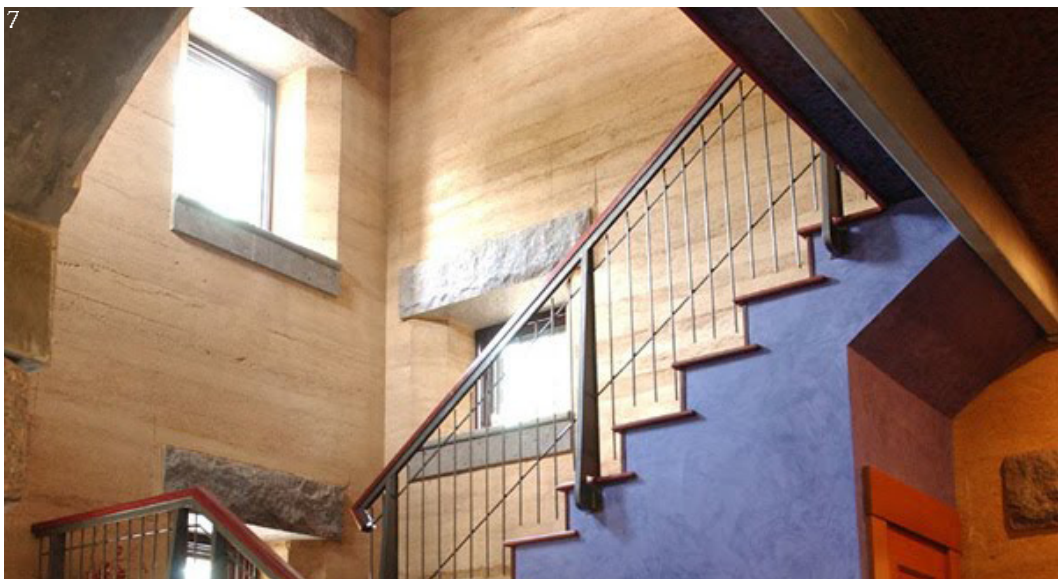
We briefly enjoyed the discussion of material in the city. Of course, at the scale of the city, a singular material is hard to imagine. However, the cities of the past have managed to produce wonderful urban fabric all folded out of the clay of the earth. And so why couldn't we. Rammed Earth as a base material for the city seemed most appropriate. Since the proposal sought to excavate a gentle slope throughout the site, the excavation gave promise to material for construction. The production of rammed earth buildings have become so refined, the aesthetic of the construction reads quite beautiful. One can easily correlate building to the earth, when its walls are constructed of the earth.



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COMPETITION RENDER

The three main elements of our design are: 1) SUSTAINABILITY through polycentricity; 2) COMMUNITY; 3) and ITERATIVE DESIGN. Regarding SUSTAINABILITY, a city is only as sustainable as its components. Dew collection, rain collection through architectural intervention, and grey-water systems minimize city water consumption levels. Solar paneled roofing and thermal mass reduce energy consumption levels. Public transportation and pedestrian trails minimize air pollution and traffic congestion. Due to the polycentric design, destinations are within 10-15 minute walking distances. Connected parkways and series of walkways make commuting enjoyable. All these elements make sustainable living an easy task for all members of the community. Regarding COMMUNITY, the polycentric design promotes healthy circulation throughout the city to help create hustle and bustle which leads to social-cohesion and a sense of ownership and identity. Finally, in terms of ITERATIVE DESIGN, the polycentric design of the city initiates a recursive process which creates and develops new and self-similar systems within the city. By implement a design with a malleable and fertile foundation for randomness and chaos, new forms of logical infrastructure eventually emerge in recursive stages and cycles as a dynamic system that is ever-adapting to the needs and desires of the city itself through social collaboration.

Community is the often taken-for-granted foundation upon which people establish lasting relationships and achieve great things. A place with a strong sense of community aligns what would otherwise be individual lines of action and joins them into a cohesive constellation of concerted and magnified social acts. Through the development of a sustainable city, we give people ownership over a part of the world which gives back to the global community. By giving people possession of structures designed with the responsibilities of a world citizen in mind, we are transforming physical spaces into meaningful and valuable places. The ultimate goal is reflexivity. That is, to help members of the community realizes the weight of their social actions and the reasons behind them in order for them to both feel a sense of ownership over their actions and their city. We aim to help the members of our city achieve this reflexivity by giving them a sustainable and contributing environment they can feel proud to be a part of and own. With a symbolic relationship between the city and the citizen, it is our hope that the principles of sustainability and reflexivity will be inspired in the members of our community.

The Project is then aptly name SINAGUA, calling on the spirit latent in the site, its knowledge wisdom and culture, projecting a sustainable future with similar intentions.

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