

Primal Clay

Worldbuilding with the New Materialism

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ABSTRACT

How can new materialism and non-human agency inform game design research? Through a process of game-design-as-research, the hybrid setting creation game *Primal Clay* offers one possible answer. In *Primal Clay*, human players collaborate with Hydros-tone and an interactive narrative to produce a fictional game world, engaging in digital as much as material encounters. Relying on notions of material agency, this essay shows the ways in which material can exert “thing power” within the context of a collaborative, co-creative game. It concludes that materials can actively contribute to the play form, and that foregrounding such processes has the potential to broaden the field of digital game design.

CCS CONCEPTS

• Collaborative content creation; • Collaborative interaction; • Interactive games; • Design; • Performance; • Tactile and hand-based interfaces;

KEYWORDS

New materialism, Game design, Craft

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1 INTRODUCTION

Creating artificial worlds is a central part of game design. It is also part of the core gameplay in titles such as *Spore*, *Black and White 2*, *Dwarf Fortress*, and a plethora of simulation games since *SimCity*. Within Games Studies worldbuilding techniques have been discussed [11, 15], and the aptly named “god’s eye view” camera offers an example of a mechanic that foregrounds players’ ability to shape and control the world. That sense of control can be misleading however, both for designers and players. This position counters a “demiurge mindset.” The demiurge is a mythical maker deity; an entity responsible for creating the universe. When human creators conceive of themselves as wielding absolute power over shaping

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an artifact, they are stuck in the demiurge mindset, blinded to the influence of non-human actors. Such an attitude downplays the valuable contributions of non-human creative partners, and so risks narrowing design space. Nevertheless, it is the dominating perspective in current setting creation games. Rather than looking for a design that allows the world to spring from a human mind, this essay argues that the physical world enters the co-creative process of worldbuilding, shaping fiction through material action.

This paper presents a worldbuilding game that combines elements of pen and paper roleplaying games (RPGs) with digital components. It produces both a tangible artifact and an imaginary setting. Its purpose is to reconfigure player relationships with materiality and to invite supposedly inert objects to *create with*. By foregrounding the power of things to act, *Primal Clay* experimentally seeks to show how materiality can enhance the creative process and, potentially, broaden the field of game design. The challenge lies in designing a forum that enables the material to speak.

2 THE CONTEXT OF MATERIAL COLLABORATION

This project builds on a combination of game design and a critical study of materiality. The “material turn” [14] in interaction design questions our relationship to the material components of the applications, games, and interfaces we build. This includes discussions of “intra-actions” that unfold between all elements involved [2], or “thing power” [3], of these agents; the “trouble” of staying connected to a holistic shared environment [7]; and our creative “improvisational” engagement with these materialities [6]. Our argument connects to this turn as it builds on experiences of materials, material culture, and material agency.

Karana and Camere’s framework for *material experiences* targets an “experiential characterization of materials” [9] to make designers aware of the felt as well as functional qualities of a material. Here, the active encounter yields insight into the performative, sensorial, affective, and interpretive levels of a user experience [9]. The approach is designed to help participants “appreciate how people experience the object of our design process” [9]. This describes a heuristic which acknowledges “the active role of materials in shaping our ways of doing” [14].

Next to the experience of the material through a direct and active encounter, the role of the resulting object becomes important. It is not only the individual player’s material experience that defines a worldbuilding activity, but also the resulting object as a defined thing in itself and as part of *material culture*. “Artifacts recall the technology by which nature was made cultural, and they incarnate the creator’s mind, holding in form and ornament the plans that preceded them and the decisions committed in their making” [5].

Worldbuilding games have the potential to generate such meanings, placing the reconfigured and accreted contributions of its participants (human and otherwise) into the context of a tangible artifact.

Barad's co-constitutive "intra-actions" provide an engine for such gameplay. Barad argues that, "[i]t is through specific agential intra-actions that the boundaries and properties of the 'components' of phenomena become determinate and that particular embodied concepts become meaningful" [2]. In that sense, game rules provide a means of exemplifying Pickering's posthumanist *mangle*, "[a] view of science as a field of emergent human and material agency reciprocally engaged by means of a dialectic of resistance and accommodation" [10]. The system's human and non-human components reciprocally engage, they intra-act. Melchert's 1972 performance *Changes* is one example for such shared agency in action. The piece required its participants to douse their heads into slip, a kind of liquefied clay. As the slip dried, the clay-soaked artists found themselves immersed in the world of the material. They were part of the dripping, drying, and cracking of the material which exerted Bennett's "thing power" [3]. For the artists and the clay, "[t]he capacity of these bodies was not restricted to a passive 'intractability' but also included the ability to make things happen, to produce effects" [4].

Three core references to current debates in materiality stand out as central to the game development challenge at hand: 1) material experience (as a hands-on and quantifiable practice); 2) material culture (which emphasizes the history of an object reflected in its shape); and 3) material agency (in the form of "intra-actions" that realize shared emergence). The project followed a research-through-game-design approach that had to address challenges on all three levels while providing meaningful gameplay.

3 DESIGN AND DEVELOPMENT

The design started with selecting a material. Inspired by *Changes*, a gypsum cement product, Hydrostone, was chosen for its plasticity, durability, and ability to exert palpable change through drying and hardening. A powdery white substance when dry, Hydrostone is fine-grained and floury to the touch. When mixed properly it dries extremely hard, making it useful for solid cast architecture, art, and statuary products. It is also used by hobbyists to cast miniature masonry, creating the floor tiles and bricks that make up the model dungeons used in fantasy games like *Dungeons & Dragons*. The usage of Hydrostone in this project represents a playful inversion of this practice. Rather than realizing a human player's blueprint, the gameplay highlights the influence of the material on creative decisions. Given the geological connotations of the phrase "world-building," this mineral substance also suggested a fitting name for the prototype game: *Primal Clay*.

The next design phase applied Karana and Camere's material experience toolkit in a workshop. Recording the material experiences of participants—the ways they held, manipulated, and perceived the Hydrostone—helped us to identify emergent interactions that could then become part of the game.

One of these interactions lay in users' reaction to the toolkit itself: they refused to commit to simple numerical answers when interacting with Hydrostone. Instead, they penciled in explanatory

notes over numerical questionnaires [9], indicating that the rich data of their lived experience needed to be recorded differently. Like the "final reflection" portion of the toolkit, *Primal Clay* emphasizes the narrativization of the sensorial experience. The act of play merges with the formation and recording of a unique narrative impression paralleled with the sensing of the material at hand. That suggested a storytelling game, leading to the model of traditional RPGs. To scaffold the game, a Twine-based interactive narrative was developed, allowing players' and Hydrostone's contributions to respond and relate to one another, framing a combination of material experience and agency.

Material culture is reflected through the physical lump of Hydrostone left at the end of play. It signifies the fictional world created over the course of the game, holding the collective decisions of *Primal Clay* players in solid form. It is vital to understand, however, that the word "players" includes more than the game's human participants. *Primal Clay* takes pains to present Hydrostone as an active player in shaping meaning, thus reflecting material agency within collaborative fiction.

3.1 How to Play Primal Clay

Primal Clay provides a context for human players and the Hydrostone material to work together to create a fictional setting. Over the course of the game, three cups of wet Hydrostone are poured onto a play surface where it slowly hardens. The three turns/pours represent the creation of a world, the rise of a civilization on that world, and a catastrophe that befalls it. The human players represent creators, who manipulate but never totally control the Hydrostone, while the Hydrostone represents the "primal clay" that becomes the setting as well as an intra-acting co-player. Once the Hydrostone has dried, its shape becomes a representation of the fictional world.

In *Primal Clay*, players take turns answering one of the prompts proposed by the game's Twine component. Twine is a digital tool for telling interactive, nonlinear stories. Each prompt offers two choices, asking the human player to select and follow one of them. After the human player (and the Hydrostone) perform their action, a line is added to the Annals, an ongoing chronicle of the game that is appended to the bottom of each successive Twine prompt. The Annals supplement the physical Hydrostone map, creating a physical and digital record simultaneously.

The gradual drying of the Hydrostone enforces a time limitation and defines material agency beyond the players' control. The world literally solidifies. The Annals written in Twine keep a record of players' digital decisions, while the factually forming world provides a material culture object with a history in itself.

3.2 Playtesting

As a design experiment, *Primal Clay* is experimental, not solutionist. The main question during initial playtesting was whether the design would support novel material intra-actions and provide unexpected results. Two specific moments from playtesting deserve attention in this regard.

First, players constantly shape and form new objects with the hardening Hydrostone during play. However, in addition to these new features, one prompt called for "ancient relics of past worlds." In response, players gathered old parts of past Hydrostone projects.

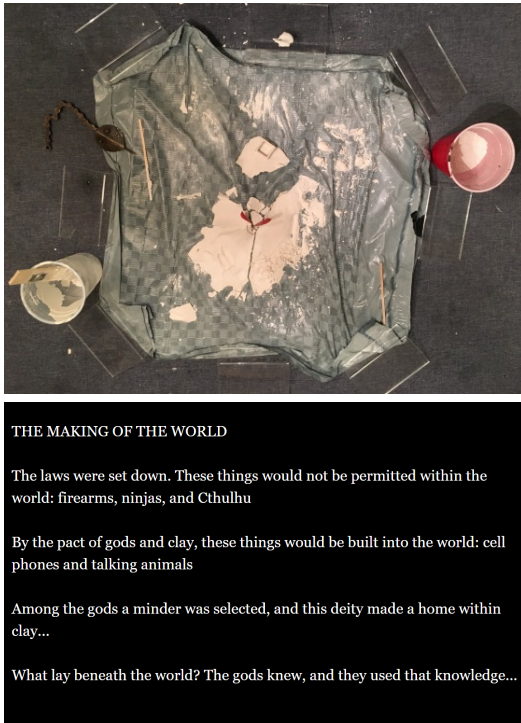


Figure 1: top: emerging material game world of hardening and player-manipulated Hydrostone; bottom: growing Annals of the gameplay session in Twine.



Figure 2: left: the spine of a dragon juts up from the map's wastelands; right: a meteor left towering plant life sprouting from the tallest mountain of the game world.

These castoff pieces were incorporated into the game world, blending past histories with emergent ones to produce the dragon bone element pictured above. The material served to inspire specific imaginings in present as well as past activity. These moments illustrate one way in which the material player of *Primal Clay* actively exerts its influence. The texture, shape, break patterns, viscosity, and other physical attributes of Hydrostone shape the game world, both on the table and in the human players' imaginations. They respond to one another in an ongoing dialectic. Second, the game's "Meteor" prompt asks players "to drop a heavy object onto the

world." In an early playtest, participants used the flower arrangement pictured in Figure 2 (right). The vase failed to damage the already-hardened world, but the flowers lost petals that stuck to the central mountain in Figure 2 (right). They became enormous flowering vines, the only way to get above the world's shrouding mist, and were summarily incorporated into the fiction and the world's Annals. Each emergent form becomes part of the world's story as it is co-constituted by the player, the interactive narrative, the Hydrostone, as well as other materials leading to an intra-acted world creation.

4 BUILDING WORLDS TOGETHER

It is not necessarily easy or comfortable to let the material speak. It does so in a different timeframe than humans, and in a different kind of voice. The structure of a formal game system was *Primal Clay's* solution to this problem. In *Changes*, to douse your head in clay is to enter the world of the material. This might apply to Melchert's practice, ceramic arts, but game designers and players have different ways to enter fictional worlds: they play. What if you did not have to leave the social world entirely to enter into dialogue with the material? By tying material and human actors into the familiar format of a game, it becomes possible to create common ground for intra-action. In effect, the 'magic circle' [8] created by game rules acts as a connector between the human players and the non-human ones.

This approach builds on the work of Acharya and Wardrip-Fruin [1] which presents a design-centric exploration of worldbuilding games. They propose a framework for co-creative setting creation games which includes three primary features: (1) Players make decisions to inform what does and does not exist in the shared game world; (2) The game world can be extended and adapted to fit the desires of players (makers) in this space; and (3) A system of moderation within the community controls what and how content is added to the world [1]. These three attributes—player-determined, adaptable, and moderated—"allow the players to determine together what they want to exist within the game world, and then use the tools provided for them during play to extend the game world to fit what they would like to see within it" [1]. The emphasis is clearly on the will of the players. Within this framework, the game and its components are relegated to the role of 'tools.' They can assist, but they cannot act. It recalls the demiurge relationship to materiality. This is where *Primal Clay* differs from comparable games in the genre. By asserting material agency, *Primal Clay* expands the range of creative actors, decentering human players in favor of material collaborators.

The element of *moderation* is especially useful in establishing this new relationship. Acharya/Wardrip-Fruin explain that, "[a] system of moderation allows players to facilitate the content added to the game world in order to provide more control for players, allowing them to collaboratively shape the game world to fit their needs and desires" [1]. In the pen and paper setting-creation RPG *Microscope*, all players are "equal creators of the world, and thus there is no player hierarchy in determining what is and what isn't added to the game world" [1]. Therein lies the opportunity for *Primal Clay* to assert material action. The three criteria from the initial materiality discussion—material experience, material culture,

and material agency—can all translate to the core of “moderation.” Individual players’ interactions with the material, the material’s actions, as well as the material’s final form all “add to the game world.” The hierarchies are flattened and the “needs and desires” are not only the human players’ but also the physical actions and conditions of the material. By constructing Hydrostone as an active player rather than an inert structure, it becomes possible to assign the material a moderator function.

In its transition from wet to malleable to hardened form, Hydrostone slowly becomes too dry to shape and mold. In that sense, Hydrostone’s moderator duties include the role of a de facto time-keeper. This is the second way in which the material player of *Primal Clay* actively exerts its influence. *Primal Clay* encodes the Acharya/Wardrip-Fruin concept that worldbuilding games allow players to make decisions about ‘what does and does not exist in the shared game world.’ But it takes a broader view of what constitutes a player. This function represents a palpable influence over the experience of play, forcing human players to listen to the voice of the material. Not unlike Melchert listened to the hardening slip in *Changes*.

5 THING FORUM

A second related game specific mechanic draws on procedural mapping. Procedural mapping has been explored in several ways in the RPG community [12, 13], even without digital assistance. Tossing beans on drafting paper or scattering dice across a playmat can both produce the rough shapes of continents or even fleshed out details. From all the dice rolled, the 20s become world capitals and castles, 18-19s become larger cities, 1-5 are plains and fields, etc. But these methods represent a single touchpoint in terms of materiality. The beans scatter, the dice roll, and then it is all down to human finagling. The beans do not sprout; the material of the dice does not matter; their agency fades fast.

In contrast, most Twine prompts in *Primal Clay* involve operations that humans and Hydrostone perform together. The play surface is lifted and the Hydrostone flows; a fist strikes the Hydrostone, causing a ragged basin shape; the dried flakes in the mixing cup form a rapidly-drying wasteland. These intra-actions preserve material agency, keeping the material an active force throughout the experience rather than a preamble to play. Material procedurality continues throughout. Likewise, by addressing the “primal clay” as a co-creator within the fiction of the game, *Primal Clay* foregrounds material action in a more general sense. The player/ maker “has the ability to change what is in the game world both for themselves and other players” [1]. That logic holds true across the paradigm shift to include non-human actors. By regarding Hydrostone as an active force, human players begin to open themselves to the possibility of non-human activity and choice in general. Playing *Primal Clay* re-structures play to encourage its human players to encounter and accept their material circumstances into the creative process. By allowing the Hydrostone to speak, the experience becomes a forum for other non-human actors to speak as well.

6 CONCLUSION

This essay outlined how gypsum concrete can actively participate in the co-creative worldbuilding RPG *Primal Clay*. Its physical properties serve to inspire specific imaginings in human players, and its material agencies serve a moderator function beyond pre-play procedurality. By placing Hydrostone in the fictional framework of the game world, *Primal Clay* highlights the material’s ability to impart information to that world. The material acts and the game’s narrative component calls attention to this ability. This game experiment bears the potential to instill in its human players a greater awareness of non-human activity through material experience, and records those impressions through the tangible artifact of material culture. Future work should emphasize other voices: those of paper, plastic, or wood. In this way, *Primal Clay* argues for a broader understanding of collaborative practices of gameplay and game design.

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